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THE AMERICAN ENGINEER

SEPTEMBER, 1936

PUBLISHED BY
THE NATIONAL SOCIETY OF PROFESSIONAL ENGINEERS

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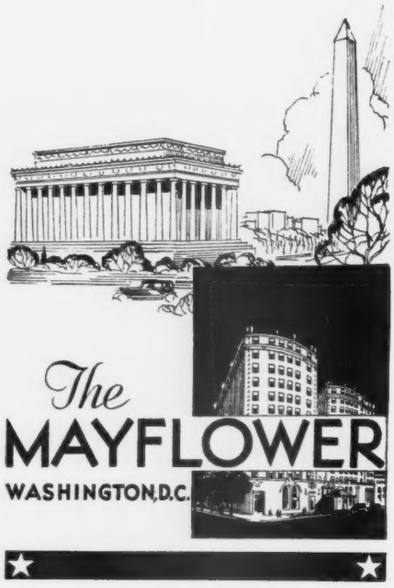

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THE AMERICAN ENGINEER

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THE SECOND CONVENTION

Washington, D. C., Oct. 12th and 13th

To be Scene of Annual Meeting

of

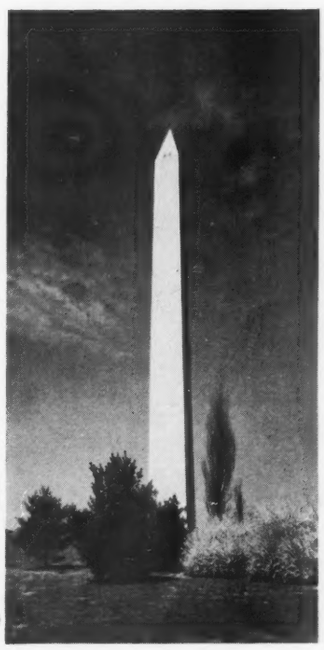
The National Society of Professional Engineers

Symposium on Problems of National Concern

THE City of Washington and the District of Columbia Chapter will play host to the National Society of Professional Engineers, at its Second Annual Convention, which will take place on October 12th and 13th, at the Mayflower Hotel

A program of pre-convention activities intended to promote social contacts and to afford an opportunity to see some of the world-famous attractions of the nation's most beautiful city, is in the course of preparation. Details of the social as well as of the business program will appear in the October issue of the American Engineer.

It is significant, that Washington should be the site of a convention of engineers. It was the foresight and genius of an engineer that planned the world's finest city, and it is the courage and knowledge of the engineer that is today required to maintain its position as the center of beauty, of progress and of hope for the social and economic welfare of the people of the greatest republic that has yet occupied the attention of mankind. Coming on the eve of a presidential election which is to determine whether the New Deal shall survive or the Old Deal return—at least in part—the convention will afford the engineer an opportunity to record himself, not on partisan politics, but on the subject of the inevitable result—whether by new or old deal administration—of ignoring the causes of civilized existence in attempting to develop and maintain human society.



Washington Monument

The National Society does not concern itself with technical matters. There will be no consideration of the processes of structural, mechanical, electrical or chemical engineering. Such matters belong to the technical societies. There will be, however, consideration of floods and droughts, the effects of which are of far greater concern to Americans and to mankind at large, than the success or failure of any party, group or individual to enforce man-conceived and man-executed social doctrines. The poorest form of government can be effective if administered by good and able men, while the best (this is a superlative in hypothesis) may bring ruin if directed by dishonest or unqualified administrators. The laws of nature, however, are not subject to theorizing or to sincere or even selfish aspirations. Knowledge of the physical laws of the universe and honest capability in the application of the same are the "sine qua non" of protection against misdirected natural forces. Man must place engineering needs before either social or economic requirements if he is to survive. Without the first, the other two are impossible in communal existence.

This is the engineer's opportunity as well as his duty, to bring forcefully to public, to press and to governmental agency, the realization that self-preservation is still the first law of mankind as well as of nature. A cordial invitation is extended to the lay public as well as to every civic-minded engineer to participate in a Symposium on—Serving and Saving a Nation.

THE NATIONAL SOCIETY of Professional Engineers

What It Has Already Accomplished

Two Years of Progress

By

D. B. STEINMAN

THE National Society of Professional Engineers, organized September 3, 1934, has already recorded the following accomplishments:

1. In 1934, stimulated and assisted in the organization of State Societies of Professional Engineers in three additional States (Connecticut, West Virginia and Kentucky).

2. In 1935, inspired existing engineering societies in two States to reorganize as State Societies of Professional Engineers (Ohio and Utah).

3. In 1935, organized the District of Columbia Society of Professional Engineers, with the Chief Engineers of principal Government Departments and Bureaus as charter members.

4. In 1935, inspired the organization of the Oklahoma Society of Professional Engineers.

5. In 1936, organized State Societies of Professional Engineers in two more States (Texas and Virginia).

6. In two years (1934 to 1936), has increased the number of State Societies of Professional Engineers from three (New Jersey, New York, and Pennsylvania) to twelve.

7. In 1934, brought five State Societies of Professional Engineers together in mutual cooperation and united strength as Member State Societies of the National Society of Professional Engineers (New York, Pennsylvania, New Jersey, Connecticut, and Illinois).

8. In 1935, brought four more States into the National Society of Professional Engineers (Ohio, Kentucky, West Virginia, and the District of Columbia), increasing the number of our Member State Societies from five to nine.

9. In 1936, brought three more States into the National Society of Professional Engineers (Oklahoma, Texas, and Virginia), increasing the number of our Member State Societies from nine to twelve.

10. In 1935, successfully assisted seven additional States in securing Engineers' Registration Laws (New Mexico, Washington, Utah, Maine, Oklahoma, Connecticut and Alabama), increasing the number of Registration States from 28 to 35.

11. In less than a year after the organization of the National Society of Professional Engineers, more progress was recorded in extending Engineers' Registration legislation than in the ten years preceding.

12. In 1935, stimulated the re-enactment of the Engineers' Registration Law in Nevada in order to make it effective.

13. In 1935 and 1936, assisted or stimulated nine additional States in drafting Engineers' Registration Laws and in organizing for their enactment (Illinois, Kentucky, Texas, Nebraska, Missouri, Massachusetts, Georgia, Maryland, and Delaware).

14. In 1936, sponsored the introduction of bills in Congress (S. 4443 by Senator Capper and H. R. 11853 by Congressman Quinn) for an Engineers' Registration Law for the District of Columbia.

15. In 1935, conducted an educational campaign against classified Registration (or licensing to practice in limited branches of the profession) and helped to influence one new State Board (Connecticut) to adopt unclassified Registration, and another State (Wisconsin) amended its Registration Law so as to eliminate classification.

16. In 1935, secured the active cooperation of the Associated Press, the United Press, and individual newspapers in our campaign to restrict the designation "engineer" to the members of the engineering profession and to substitute the designation "engineman" for those who operate locomotives or engines.

17. In 1935, secured the agreement of the U. S. Department of Labor to cooperate in our campaign to restrict the designation "engineer" and to designate engine-operators as "enginemen" in future Government classifications and public reports.

18. In 1936, secured the cooperation of the railroads in adopting the use of the term "enginemen" to designate the operators of locomotives.

19. Since 1935, has carried on a publicity campaign in national magazines and local newspapers in order to promote distinctive recognition for the Professional Engineer and to acquaint the public with the qualifications, legal status, contributions, public service, ideals and objectives of the Engineering Profession.

20. In 1935, established National Headquarters at Washington, D. C. to serve as a point of contact, on behalf of all Professional Engineers, with legislators and Government officials at the Nation's Capital.

21. In 1935, launched a campaign to secure the establishment of a permanent Department of Public Works in the National Government, to be headed by an engineer in the President's Cabinet as Secretary of Public Works; and actively supported legislation (S. 2665) subsequently introduced toward that objective.

22. In 1935, successfully opposed legislation (S. 2994) which was introduced in Congress on behalf of the legal profession and which would have deprived Engineers and others of the right to appear for clients and organizations at hearings before Governmental boards or agencies.

23. In 1935, the Washington office placed its services freely at the disposal of unemployed Professional Engineers to establish contacts with available appointments in Federal departments and agencies, and successfully assisted a number of unemployed Engineers

in securing such appointments in responsible engineering positions in the Government service.

24. In January 1935, the first fiscal month of the organization of the National Society of Professional Engineers, promptly established the publication of the "American Engineer" as a national non-technical magazine, devoted to the professional, social and economic interests of the Engineer, and having an initial circulation of over 4,000.

25. In 1935, inaugurated the custom of using the distinctive prefatory designation of Engineer or Engr. (instead of Mr. or other title) before the names of Professional Engineers, and has recorded progress in securing the adoption of this usage at meetings and conventions, in newspaper publicity, and in correspondence.

26. In 1936, successfully assisted the Engineers of Delaware (who were not organized and who lacked the protection of a Registration Law) in securing the correction of new building code provisions which established a monopoly for Architects and which unfairly deprived Engineers of the right to prepare and file structural plans.

27. In 1936, assisted the Pennsylvania Society of Professional Engineers in vigorously protesting and successfully stopping an attempted political interference with the honest functioning of the State Registration Board of Professional Engineers.

28. In 1935, successfully protested a nationwide advertising program of a well-known product which had adopted a picture emblem and slogan that featured the "engineer" in an unprofessional and degrading connotation.

29. In 1936, through its National Committee on Professional Relations, enlisted the interest of the American Bar Association in cooperative professional relations together with invited participation for conferences and addresses at its annual convention.

30. Since 1935, has successfully encouraged and assisted various Member State Societies in securing desired legislation and in opposing legislation jeopardizing the interests of Engineers or the program of the Engineering Profession.

In addition, the National Society of Professional Engineers, by its encouragement, guidance, and active support, has stimulated or assisted its Member State Societies in recording the following lists of accomplishments:

OHIO

1. In 1935, the Ohio Engineering Society, at its 56th annual convention, voted unanimously to become the Ohio Society of Professional Engineers and to join the National Society of Professional Engineers.

2. Within a few months thereafter, the Ohio Society successfully and effectively organized the Professional Engineers throughout the State into 27 local chapters, covering all of the 88 Counties of Ohio and enrolling more than fifty per cent of all the Registered Engineers in the State.

3. In 1935, the Ohio Society secured legislation strengthening the Engineers' Registration Law and providing for its effective enforcement.

4. In 1935, the Ohio Society secured legislation (S. 174) providing that all funds collected from Registration shall be retained by the State Board of Registration to be used exclusively for the benefit of the Registered Engineers. (It is estimated that the existing surplus made available by this legislation will dispense with the $1.50 renewal fees for ten years, thereby saving the Registered Engineers of Ohio approximately $120,000.)

5. In 1935, the Ohio Society secured legislation (H. 97) changing the official designation of "County Surveyor" to "County Engineer" and establishing the requirement that, in the future, every candidate for election to the office of County Engineer must be a Registered Professional Engineer.

6. In 1935, the Ohio Society successfully stopped legislation (S. 58) designed to exempt insurance companies and their employees from the provisions of the Engineers' Registration Law.

7. In 1935, the Ohio Society actively sponsored or opposed seven bills before the State Legislature and, by almost unanimous vote in both branches of the Legislature, secured the enactment of every measure sponsored by the Society and the defeat of every measure opposed by the Society.

8. In 1935, the Ohio Society and its local County Chapters successfully formulated and adopted governing codes for standardization of engineering practices, schedules of standard fees for professional services, and uniform and standard contracts to be used by Engineers in private practice.

9. In the 1936 elections held in the 88 Counties of Ohio, every successful candidate for the office of County Engineer was a member of the Ohio Society of Professional Engineers.

10. In 1936, the Ohio Society successfully protested the proposal of inadequate schedules of fees set up by the County Courts for surveys and expert testimony and secured the official adoption by the County Courts of the schedules of fees previously formulated by the County Chapters.

11. In 1935, the Ohio Society secured official adoption in all County Engineers' offices of the ruling that no plans or maps may be filed unless bearing the signature and seal of a Registered Engineer or Surveyor.

12. In 1936, the Ohio Society, through its County Chapters, secured the ruling by Building Commissioners that all building plans must bear the seal of a Registered Engineer or Architect; and that plans involving structural design, even though filed by a Registered Architect, will be rejected unless bearing the signature and seal of a Registered Engineer.

13. In 1936, the Ohio Society, through its County Chapters, secured rulings of the Civil Service Commissions establishing Registration as a prerequisite for admission to Civil Service examinations for engineering positions.

14. In 1936, the Ohio Society, through its County Chapters, commenced a campaign to secure restoration of pay cuts for Engineers in municipal service.

NEW YORK

1. In 1935, the New York State Society of Professional Engineers secured significant legislation prohibiting the practice of engineering by any new corporations and the formation of new "engineering" corporations; also restricting the practice of engineering by any previously existing corporations so as to require the chief executive, all engineering employees, and all

(*Continued on page* 25)

SECOND ANNUAL CONVENTION

National Society of Professional Engineers

Washington, D. C.

October 12th - 13th

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Mrs. FRANK L. TOBIN
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Washington, D. C.

Capitol

FLOOD CONTROL

A Symposium on the Subject

Relations of Engineering Science to Flood Control

As presented in an Address

By
MORRIS L. COOKE

THE following was proposed and presented before the Ecological Society of America and the American Association for the Advancement of Science, Rochester, New York, June 18, 1936:

To discuss engineering science and flood control with engineers and ecologists is as though one had been challenged to show whether engineers apprehend the significance of their work insofar as it concerns man in his relations to biological and other environmental factors. One might counter by adopting the lawyer's technique of confession and avoidance. Engineering has indeed had a very limited vision of the relation of its work to man in his adjustment to environment. But the programs of scientific societies generally show more concern for specialization and minutiae than for the broad social and philosophic implications of their sciences. The sociologists and the geographers and certain agencies of Federal and State governments have, one suspects, advanced beyond most of us—engineers and scientists—in their appreciation of trends in these relations.

The Aldo Leopolds are rare. In most of us consciousness has only recently been awakened to the fact that "Civilization is not . . . the enslavement of a stable and constant earth, (but) is a state of *mutual and interdependent cooperation* between human animals, other animals, plants, and soils, which may be disrupted at any moment by the failure of any of them."

The engineering of flood control *is* a problem of ecology—of *human* ecology. It is something larger than calculations of precipitation, run-off, cubic-second and acre-feet; levees and revetments; dams and spill-ways. Every engineering work that has modified the soil, or the minerals lying below the earth's surface, or the behavior of waters, is one increment in a great combination of forces that influence human destiny. Little did the first settler who turned under the natural sod of the great "dust bowl"—or the second settler, or the hundredth—perceive the influence of his act either on himself or on his fellow men. But today we perceive that the rich assets provided by nature in that region are all but destroyed. Scientists and engineers should have sounded a warning; or at least should have tried to prevent such naive ignorance as that of farmers who encouraged sheet erosion because they believed a new soil was provided thereby. Engineers who drained the wet lands in the northern sector of the Mississippi drainage area and those who promoted irrigation works on lands infertile or alkaline, gave scant thought to the influence of their acts on the water table, the ground moisture, the availability of water for farms and cities, and the welfare of many an honest, hard-working, God-fearing rural family.

All engineer groups, not merely civil engineers, have been and still are both narrow and short-sighted. The mechanical engineers, for instance, have not recognized the influence on man's adjustment to his environment of those huge, productive equipments—in themselves, magnificent examples of engineering—which they have designed and constructed. Engineers have not perceived the basic reality of the problem of assimilation of their new mechanical technology, and they have for this reason helped to create this great economic dust bowl of unemployment out of which we are making painful efforts to extricate ourselves. Engineering generally has been scientific in respect to minutiae, but not as to the influence of the application of its technology and science on organized society.

There is a case for the engineers. As scientists they should have in mind the total influence of their works, which can not be expected of the non-professional public, and should instruct the lay public as to the important things they see looming on the horizon. Nevertheless, their more immediate incentive as professional men is to meet the current and incessant demands of employers and clients for particular works. It has thus been both easy and natural for engineers to permit the bulk of their interest and their genius to be concentrated on the problems of the moment. Accordingly the engineering profession has been absorbed for the most part with the problems of a machine here and a machine there, a dam and reservoir for power here, a levee or dam for flood control there. Any one such task involves a great number of subsidiary problems, and it is these that have absorbed the abilities and the time of the limited supply of competent technically trained men in a country undergoing rapid development. But, the situation as to the waste of our basic resources being what it is, the public must now present an imperative and ceaseless demand on engineers, not merely for the design and construction of specific works, but for the design of the influence we desire all engineering works to have on human welfare. In these larger aspects of design, engineers must associate themselves with other scientists—with ecologists and geographers, with geologists and biologists.

If we would preserve our country and thereby our society, engineers and scientists must become conservationists. In addition to the simple definition that conservation is wise use, one of the best definitions of

which I know is the joint product of twenty-seven scholastic units of the University of Wisconsin,* the major concepts of which can be summarized as follows: *maximum* present *and future* benefit from the use of natural resources; substitution of *renewable* for non-renewable resources; maintenance of renewable resources at a level *commensurate with the needs of society;* prompt *adjustments* to the *advance* in *technology;* balancing of *natural* against *human* resources; harmonizing the objectives of *conservation* with conditions of the *present* and *future economic order.*

This definition is pertinent because flood control is a problem of conservation—not merely of engineering in the common meaning of the term. In the narrow view flood control is a problem of conserving the lives of those who reside and of properties located in areas subject to destructive floods. This aspect is critical and makes necessary, levees, large reservoirs and channel improvements on large streams. But in the larger and proper view, derived from study of all the factors involved, the problem of flood control overlaps and is conditioned by inter-related problems of conservation of many kinds, such as precipitation and the character of the soil on which it falls and from which it runs off; creeks, ponds, marshes, and the flow of streams, small and large; the ground-water supply and seepage; clean water, sanitation and health; recreation; forests, grasses, other vegetation; wild-life.

It is a problem of upstream engineering where waters have their origin, as well as of downstream engineering where their destructive power is felt. And upstream engineering reaches back on to the land, to infiltration and run-off engineering at the points of ultimate origin. It is a problem of prevention engineering as well as of counteraction engineering.

Heretofore, engineering has had its eyes focused on the locations and on the consequences of floods to those immediately affected; on counteracting works such as levees, revetments, huge reservoirs and floodways. This is still the route by which the anxieties of particular and restricted areas will be quieted. But such steps will not either check soil erosion or solve the country-wide flood problem. Hereafter our vision must extend back to the point of origin and the behavior of every rain drop throughout the drainage area in which flood forces are generated. Our engineering grasp must include all other related conservation problems and integrate their treatment, for the sake of economy, if for no higher motive, in programs of conservatory flood control.

For over a century the problem of flood control on the Mississippi River from Cairo to the Gulf has been attacked as a problem in itself and by counteractive measures only. Through the years protective levees of increasing height were adopted as the essential control device. Then came the failure of the levee system during the great flood of 1927, and in 1929 the Government, on recommendation of the engineers concerned, adopted a new plan, now known as "The Adopted Plan," for levees that normally will confine the Mississippi River to its main channel and back-water area, and for floodways that will carry off part of the water of high floods expected to occur on an average of once in 13 years. However, even under the Adopted Plan floods on the lower Mississippi are handled as situations in themselves. So are floods on the Missouri and on the Ohio; on the Monongahela and Allegheny; on the White, Arkansas, and Red rivers; on the Tennessee and Cumberland. If we could from the beginning have recognized that these are all members of the great Mississippi River drainage area, requiring both preventive and counteractive measures, planned and coordinated for the entire system, we would have been able to devise and adopt a more rational, more effective, and, measured in terms of total benefits, less costly system of control. The waters of the lower Mississippi, of course, come immediately from the major tributaries I have named. But the waters of any one of these come in turn from its tributaries, and the waters of these tributaries from lesser streams, and the waters of these are made up of innumerable rain drops. How these rain drops are made to behave as they wend their way to the sea not only affects favorably the extent and cost of counteractive measures on the lower main stem, but also may result in innumerable benefits throughout the entire drainage area. For the measures which would necessarily be pursued throughout the drainage area, and especially back in the watershed sectors, would involve selective use of lands; erosion control through forestation, reforestation, restoration of grasses and improved agricultural practices; the creation of numerous small reservoirs for small power sources, local irrigation, and provision for recreation and wild life; the restoration of the ground-water supply, whereby "every field is made a reservoir"; restoration of seepage and the dry season flow of streams; the elimination of pollution and provision for adequate clean water; and improvement of navigation on major and minor waterways.

No one questions the need of counteractive measures, but one may well question the restriction of efforts to such measures. An inclusive attack on the problem of conservation, of which flood control is but a part, is of primary importance. The conventional attack, now on this now on that aspect of the problem, is no longer adequate for a society as complex as is ours; for a society which has already wasted so much of its natural resources, and jeopardized its human resources, as has ours. By the piece-meal attack we have committed three collateral errors: first, measures have generally been limited to counteraction of results and have not included the elimination of causes; second, because of neglect of prevention cumulative social losses have been permitted to develop in the area of causes; and third, the uncoordinated handling of the flood problem has been more costly—*all* benefits and *all* costs considered—than would otherwise have been necessary.

---

*Quoted by Dr. C. K. Leith in "Conservation of Minerals," Second Report of the Science Advisory Board, September 1, 1935, p. 357—as follows: "Conservation is the effort to insure to society the maximum present and future benefit from the use of natural resources. It involves the inventory and evaluation of natural resources; calls for the maintenance of the renewable resources at a level commensurate with the needs of society; and requires the substitution, where the conservation of human energy permits, of renewable or inexhaustible resources for those which are non-renewable, and of the more abundant non-renewable resources for the less abundant ones. It not only seeks to eliminate waste of resources if use is economically feasible, but also looks forward to improvements in techniques of production and use, and requires that there be prompt and proper adjustments to advances in technology. It thus appears that conservation involves the balancing of natural resources against human resources and the rights of the present generation against the rights of future generations. It necessitates, moreover, the harmonizing of the procedures and objectives of conservation with the conditions of the present or future economic order, and calls for a careful allocation of duties and powers among private and public agencies."

The problem of erosion control alone is much more important than the problem of flood control; the annual losses are greater, the problem is less localized, and the threatened result is essential destruction of our great country. But erosion control, although it means conserving soil, is as much a problem of water as of soil, for its causes are found in the destructive behavior of water arising from man's carelessness. We do not save the soil by disregarding the water factor, but by handling the soil in such a manner that the water falling on it behaves itself.

Notwithstanding the splendid work of the Department of Agriculture, and especially of its experiment stations and Extension Service, American agriculture is not holding its own. If we eliminate the factor of increase of area and consider per farm or per acre data—especially if we consider data that serve as indices of cultural status—our agriculture is suffering continuing degradation. Destructive forces not yet brought under control outweigh the good work being done. These forces are numerous, and some of them are of a different nature from those we are considering today—belong in the realm of economic forces. But irrational selection of land for use, the technical manner in which cultivated land is handled, and the resultant erosion are large factors in the decline of American agriculture. Soil is being washed away at an accelerating rate, buildings are depreciating rapidly, and agricultural assets of all kinds are being depleted. It is as easy for a nation as for an individual to dissipate great wealth; easier, in fact, for there is in an individual a centralization of interest, responsibility and power to act not possessed by a nation characterized by individual ownerships and control of its lands.

This progressive decline towards a degraded agriculture on which depleted assets are being worked by a tenant peasantry, is as serious for the nation as for the individuals affected; as serious for the cities as for the rural areas. I have only to remind you that studies of population trends indicate that the present fourth of our population represented by those engaged in agriculture are the progenitors of two-thirds of our population one hundred years hence. Cities do not reproduce themselves; they depend on the surplus youth of "Ruralaria" to maintain the population. The critical problem of eugenics today, therefore, is the maintenance of high physical and cultural standards in the agricultural sector of our population. "Nature has provided (for the United States) the basis for as fine a rural aristocracy as the world has ever known, but instead it is becoming a land of tenant farmers living in houses that are frequently little more than hovels."*

If we are to reverse the trend in rural life, speed is of paramount importance. Once begun, decline in economic and cultural status is difficult to arrest. As in some human ills, the disease progresses at an accelerating rate, while the patient becomes less able to resist. Also as in some human ills, the cure may be impossible if effective treatment is not applied at an early stage.

The engineering profession has not given an adequate forum to the problems of up-stream engineering and little waters. One searches the Transactions of the American Society of Civil Engineers in vain for any significant literature of up-stream engineering. Here and there is a paper on small-scale irrigation in India or Africa, or a paper on a reservoir for a rich man's estate. But there is nothing on what engineering has done or might do to conserve the waters of small streams generally, and influence thereby the behavior of waters or large streams.†

Down-stream engineering is concerned necessarily with powerful forces and huge works; great reservoirs, gigantic dams, powerful apparatus of control. Up-stream engineering will necessarily be concerned not only with smaller structures, but with a technique in which simplification and automaticity predominate, in order to reduce the overhead of investment, and heavy maintenance and operating costs. Simplification is represented by contour plowing, terracing, and such retardation devices as beaver-dam-like structures. Automaticity will be influenced by the availability of electricity and result in new combinations for new purposes of many familiar devices now available, supplemented by new devices invented or designed under the stimulus of an awakened creative interest in up-stream problems.

Given an awakening as to the urgency of up-stream engineering, and the promise of an adequate livelihood for its practitioners, American engineering has the technical competence and the constructive imagination to formulate a body of coordinated up-stream engineering knowledge, and a technique expressed in relatively simple and inexpensive schemes of water control.

Relatively simple and inexpensive schemes—that is an important consideration! However, we have misled ourselves in the matter of relative costs because of a very narrow concept of the nature of benefits and costs, and are unduly frightened whenever the matter of cost arises.

Analysis of costs and benefits, even of public works, has been and still is an application of the technique of calculating measurable expenditures and receipts as employed by private industry. That technique generally is not adequate for calculating the costs of conservation works for three major reasons. It seldom takes into consideration: first, *multiple* uses and benefits; second, *intangible* uses and benefits that cannot be measured in terms of money, and sold; and third, costs or losses that are being experienced and will continue to be experienced if the contemplated measures of conservation are not pursued. Social accounting is quite a different order of accounting from that employed by private industry. Private accounting is the accounting of acquisition and the preservation of ownership; social accounting is the accounting of the satisfaction of need and the prevention of losses of human and physical assets.

Sometimes engineers fail to consider their projects as potentially multi-functional in that one development may yield a number of services or products. Too frequently their calculations indicate infeasibility as measured by the criteria of private industry. But in any calculation of costs and benefits of works for social purposes such as are not limited by any simple profit-making objective, every beneficial use, with adjust-

(*Continued on page* 23)

*From unpublished manuscript of Dr. O. E. Baker, Senior Economist of the Department of Agriculture.

†Every American citizen should read a significant report entitled "Little Waters" prepared under the joint auspices of Soil Conservation Service, Resettlement Administration and Rural Electrification Administration, and published by the National Resources Committee. Superintendent of Documents, 15 cents. See also "Soil Erosion," Part V of the Supplementary Report of the Land Planning Committee of the National Resources Board, Superintendent of Documents, 75 cents.

AN ENGINEER'S RESPONSIBILITY

Reconciling Flood Causes and Cures

As Viewed by Differing Schools of Thought Should be Accomplished Without Delay Elimination of Politics Paramount

By
HARRY E. HARRIS

AS POINTED out in previous articles, there are two schools of thought in regard to flood control. One is concerned by reason of vocational interests or professional training in flood "protection" and the other, due to the same influences, feels that flood "prevention" is the paramount issue.

The broad gauge engineering point of view, taking into consideration all contributing elements, cannot select any single factor as supreme or which should receive concentrated attention to the neglect or exclusion of the other components of the problem.

As among the passengers in a subway train, the shoemaker thinks that the shoes that the others wear are most important, the tailor notes their clothes, the hatter can only see their headgear, the barber, their coiffure, the cook is interested whether they look like good feeders, the doctor gauges their apparent health, and the undertaker perhaps how sickly they look. In other words, all humans react according to their special training, vocation, avocation, environment and education.

Professional engineers as a class all have the same fundamental education and scientific training, but this world in all its complexity, is dependent upon the engineering works of so many and wide ramifications that no one individual could live long enough to master and practice the entire field of engineering. Therefore, the members of the profession, like others in professions not nearly so intricate, follow specialized endeavors, some quite broad and others relatively narrow.

The problem of flood control affects practically all major and many minor branches of engineering—civil, electrical, mechanical, agricultural, sanitation, power plants, structural, bridge, municipal, army, hydraulic, highway, etc.

Naturally each engineer, like the shoemaker, looks at the problem in the light of his own abilities, aptitudes and knowledge.

The army engineer sees dredged channels, high levees, dikes, revetments, etc., as the solution to the problem, the hydraulic engineer and the electrical engineer the possibilities for huge water power and electrification projects, the agricultural engineer is well posted on the fact that our country and its soil resources are rapidly being washed into reservoir and river bottoms and becoming a dead loss, either becoming polluted silt or carried out to sea, municipal and sanitation engineers may feel that sanitary problems and pollution are crying for immediate attention, and so on, each engineer being thoroughly and honestly impressed with the primary importance of that which he is a part of, or is a part of him and urges special recognition to his claim for attention, which is as it should be.

However, this National Society, all these State Societies of Professional Engineers, and their multitudinous members, of every specialty, branch and classification of the profession, can, through a congress of their Committees on Flood Control, coordinate and correlate the proposals of each and every character, and recommend a balanced program on an integrated basis considering all aspects of water control and soil conservation.

They can bring the force of their opinion to bear upon the Executive and Legislative powers in State and Nation and can educate the public with the aid of the press to the necessity of prompt and unified action, if water waste and flood are not to be allowed to gut our country.

The harpies, the looters, the pork barrel politicians can be checked if present National and State bills on flood control are reviewed and revamped by disinterested engineering committees before passage.

The people's birthright seems to be the privilege of paying taxes and then more taxes, but it is getting so that most of us would sell it for a mess of pottage. Engineering methods of planning administration and operation in this matter and at this juncture could save them some of their birthright and a little pottage too.

The attitude of the professional engineer to his fellow-beings is distinctly parental. As the parent guides his child, putting its interests foremost, sacrificing his own conveniences, concerns and pleasures, that the child may be happy, healthy, properly educated; always working for its present and future well being; worrying and losing sleep when it is in trouble, sickness and the ilk; so does the engineer carry the problems of humanity and civilization for the rest of the people. The troubles and necessities of his fellow-men are solved by him, and too often the benefits are received by the beneficiaries, as the apples in the orchard are by the proverbial swine who do not look up at the trees, in fact, probably do not even know that the apples came from the trees.

As the parent cares for the child, so does the engineer care for his fellow-man, his engineering education and training being to put accomplishment and service before selfish interest or monetary reward; as the science he follows does not admit of errors, so is he meticulous in his dealings.

To borrow some words from Dr. Steinman, "he bends the material and forces of nature for the good of civili-

zation, he labors to increase the comfort, wealth and safety of his fellow-men. He is the planner and builder, the creator of the nation's wealth, and the conservator of its resources."

His chief reward is in his pride in seeing mankind deriving the benefits from the results of his efforts, the pride and pleasure of a parent in providing necessities, comforts and luxuries for his offspring, and not regretting his own deprivations or sacrifices. He is a doer, his first interest is in his doings and his reward is in his accomplishments.

The present activities of the engineers in this all-important matter of flood control would result in the greatest single benefit that they have ever conferred upon their fellow-countrymen, and it is their duty to carry on in spite of many discouragements.

As a disinterested body of qualified professional men, not bound or hampered by political affiliation, State or Federal departmental or bureaucratic control, free from military discipline or other factors to influence their judgment, they are the only ones in the position and fully qualified to show the way toward balanced, rational order out of the present disorganized chaotic activities milling around the water control and soil conservation efforts.

Secretary Henry A. Wallace of the Department of Agriculture is undoubtedly conservative when he says and urges that land water be made "to walk or creep" at the "grass roots" both to minimize floods and to save lands from washing or blowing away, and asserts that no other civilization has ever solved the problem of preventing soil erosion, and that the next 40 or 50 years would decide whether we would have a land of self-renewing soil resources or a gutted country of impoverished farms. Other students of the problem say we have but 20 years in which to complete our conservation program before the country will be irreparably damaged.

On the other hand, Major General Edward Markham, of the War Department Army Engineers, has plenty of justification for his contention that only huge dams, levees, and cut-offs could hold back cataclysmic downfalls.

Other elements of pollution, water supply, water power, electrification, forestation, etc., have their plans, their just claims for attention and their ardent proponents, and there is not enough space in this magazine to quote them all.

The necessity is to check too much enthusiasm in any particular direction or directions and to balance the values of the different elements and place them where they belong. Extremes should be brought together. Perhaps, if it is true as is reliably claimed, that run-off water in upper levels can be reduced 60% to 75% by forestation and proper tillage at relatively low expense, attention to this phase may reduce the vastness of the proposed dams, dikes, levees and dredging operations required, and cut the appropriations needed for this phase in half. But whether it will or not, the entire matter of water control and soil conservation is no place to economize and, roughly estimated, as much should be appropriated toward soil conservation and intermediate projects as for river channel and reservoir works, and all projects should be combined in unified engineering control and each drainage area under a central coordinating engineering authority.

Water-power projects are assumed to eventually become productive and self-supporting and therefore, economically justified, but no argument is being presented here on the merits of this assumption, but rather that water must be retained in the soil, and erosion and top soil loss checked, at once and at any cost, is beyond the stage of argument, if we are to remain a prosperous and virile nation. That rivers must be held from inundating their banks and causing temporary devastation, loss of life and property, is also beyond question.

That it is the duty of the professional engineers to see that the whole program is carried out in an expeditious, economical and effective way, I can see no question. It is the "bounden duty" of a strong swimmer to rescue the drowning man, the captain to guide his company, the traffic officer to guard the pedestrian, the strong to protect the weak, and in like manner must the professional engineer in this case rescue, guide, guard and protect the health, wealth and future of his fellow countrymen and their country.

State Societies are urged to form Flood Control committees in their various groups and educate their Senators and Congressmen so that they may be guided to right action in introducing, considering and amending the various bills and laws.

They should use their influence to change—

Dirty Pork Barrel Politics, to
Dirty Work Barred from Politics

as this is the chief menace to proper coordinated engineering action productive of economical and lasting results.

If six-and-a-quarter million dollars have been spent during the last three years on water projects, and if it is even contemplated to spend the huge sum of $8,000,000,000 or more, starting in the near future (about $65 for every man, woman or child; white, black or foreign, in the country), is it not up to the engineers to see that it is warranted and, if so, that it is honestly spent, and that the tax-burdened citizens get a full value return on their money?

Chief Engineer Richard S. Holmgren of the Water Resources Board of the State of New Hampshire, speaking for Governor Bridges, says, "We have at present no definite reports on tentative plans on interstate water control but we are cooperating in every possible way with those organizations who are showing interest in these matters, and as soon as official bodies are set up we will cooperate officially. Mr. Jacobson, our chairman, has communicated, and talked over matters, with General Wadham of Connecticut concerning those matters which are of interest to these two states. We have also contacted the New England Planning Board at Boston on general matters of interstate control." This worthy attempt in New Hampshire is evidently baffled by the confusion and cross purposes apparently in control of the New England situation at the present time. If the professional engineers in every state would join hands with the professional engineers in New Hampshire, much might be accomplished.

The press recognizes the need of clarifying the situation. Past President Grove Patterson, of the American Society of Newspaper Editors, and Editor of the Toledo Blade, suggested that the matter be discussed at the next meeting of the Society and President Marvin H. Creager, of the American Society of Newspaper

(*Continued on page* 23)

A CREED

Cardinal Principles of N. S. P. E.

Twenty-five Tenets of Guidance

Attention Especially Directed to No. 25

By
D. B. STEINMAN

WE ARE members of the National Society of Professional Engineers because we believe in the following principles to which it is dedicated:

1. *Engineering is a Profession.* As members of that Profession, it is our moral obligation to strive for its advancement.

2. Engineering is a *learned* Profession. The highest educational prequalifications must be maintained for admission.

3. Engineering is *one* Profession. It should be held legally indivisible, and any move to divide it must be opposed.

4. *Before it can expect recognition, a Profession must be recognizable.* A clear dividing line must be established whereby the public may distinguish the Engineer from the non-engineer.

5. *Registration is the only means of establishing this demarcation.* Without Registration Laws, there is no way to stop the practice of Engineering and the appropriation of the designation Engineer by the unqualified and the unprofessional.

6. *Registration establishes Engineering as a legally defined and recognizable Profession.* It places the force and sanction of the law behind the efforts and aspirations of the Profession to maintain high standards of qualifications and practice.

7. *Registration is the most important agency for the advancement of the Profession, its standards and its standing.* Registration has been used effectively by other Professions as a powerful instrumentality for raising educational qualifications, ethical standards, professional status, and public recognition. Every effort should be devoted to extend Engineers' Registration legislation to the remaining States, and to improve existing Registration Laws to a uniform high standard.

8. *Protection of the Professional designation is as important as protection of practice.* A Profession is judged by the qualifications of all who use its name, and the public is confused and misled by the misappropriation of the title.

9. In any State in which an Engineers' Registration Law is established, *no man is an Engineer unless he is registered.* Existing exemptions in Registration Laws permit non-engineers, under certain conditions, to do engineering work, but such exemptions do not make any man an Engineer.

10. *The only agency that can admit a man into the Engineering Profession is the legally authorized State Board.* This responsibility cannot be delegated nor shared.

11. *No college can admit a man into the Engineering Profession by conferring a degree.* Additional qualifications are required for Professional status.

12. *Membership in an Engineering Society does not make a man an Engineer.* He should be an Engineer before he is admitted to membership. The National Society of Professional Engineers is the only organization in which all of the members are Engineers.

13. In addition to being defined, *a Profession must be integrated.* Technical societies are organized on the basis of *dividing* the Profession into branches and specialties. The National Society of Professional Engineers is organized on the principle of *uniting* all Engineers as members of one Profession.

14. *The technical problems of Civil, Mechanical, Electrical, Chemical and Mining Engineers are divergent, but the Professional problems are alike.* The National Society of Professional Engineers supplies the need of a nationwide *Professional* organization devoted to the common interests and aspirations of *all* Engineers. It is organized to do for the Engineering Profession what the Medical Association and the Bar Association have done for their respective Professions in increasing prestige, legal protection, public confidence, and professional recognition.

15. For handling local problems of legislation and public relations, *the State Society, with its County Chapters, has been demonstrated to be the most effective form of Professional organization.* The National Society of Professional Engineers is dedicated to extending and strengthening the State Society form of organization.

16. For mutual inspiration, increased effectiveness, and national accomplishment, the State Societies of Professional Engineers need to be united in a national organization. *The National Society of Professional Engineers is the established means for welding together the State Societies in united purpose, effort and achievement, and for extending the professional program on a national scale.*

17. *The Engineering Profession needs to be defined, organized, and integrated.* It is defined by Engineers' Registration Laws. It is organized in the National Society of Professional Engineers, its State Societies, and its County Chapters. It is integrated by perfecting the interlocking of the National, State, and County units so that every member of one shall be a member of all.

18. *Every man is a debtor to his Profession.* The National Society of Professional Engineers, with its State Societies, is consecrated to fostering the ideals

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ITEMS OF GENERAL INTEREST

NEWS, REPORTS, COMMENTS

NATIONAL SOCIETY ACTIVITIES

Correspondents and readers are invited to submit for publication items of interest to the professional Engineer of the country. Such material must reach the Editor prior to the fifth day of each month.

CO-OPERATION BETWEEN PROFESSIONS

From American Bar Association Journal July, 1936

The acceptance by the National Society of Professional Engineers of an invitation to send observers to the 59th annual meeting of the American Bar Association, held in Boston on August 17th to 22nd, is the response of the Engineer to the plea for co-operation. To President Ransome of the Bar Association, the National Society extends acknowledgment for the response to a previous appeal from Chairman Gelineau, of the Committee on Public Relations.

Among the encouraging developments of recent months are the increasing disposition of the various professions to emphasize and vindicate their professional status, and the widespread tendency towards cooperation and understanding between the professions in dealing with their common or like problems. Members of the profession of the law are doing well, in many localities, to recognize and go along with these significant trends and explore their interesting possibilities.

It must be recognized that, under the complex conditions of life and business today, the profession of the law meets at most of its boundaries the activities of other professions, such as medicine, engineering, public accountancy. In a considerable part of the work of many lawyers, there is direct and continuous association with those engaged in other professions. This gives rise to many problems which are common to the law and other professions, and also to problems which are generally similar in each profession.

In not a few of the state and local Bar Associations, there has lately been manifest a disposition to hold joint meetings with other professional organizations, in order to promote better acquaintance and understanding and to search out the bases of cooperative action in matters which will be advantaged by the joint judgment and action of the members of more than one profession. These occasions have proved to be not only enjoyable but usually significant and forward-looking.

In the long run, unfair treatment or injury inflicted upon any profession in the United States is likely to affect unfavorably the status of every other profession. It is a good time to take counsel together, in all parts of the country.

THE FORGOTTEN ENGINEER

Editorial From The Chicago Tribune—July 25

A Recommendation That Merits Acknowledgment

The city of Chicago, through its spe-

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N.S.P.E. BOARD MEETINGS

Attendance Most Important

By

JOHN W. DUNHAM

Member State Societies, do you think that someone is going to run N.S.P.E. for you in the way you think it should be run? If so, you are coming to a sad awakening.

The writer's Society took exception to the way in which certain National Society affairs were being conducted. It was attempted to clear the matters up by correspondence. Misunderstandings arose and the Board of Directors of the writer's Society became angry. Finally, the writer attended a meeting of the Board of Directors of N.S.P.E. He laid the grievances of his Society before the Board and as a result succeeded in having all matters of controversy adjusted satisfactorily.

The moral is obvious—every Member State Society should be sure it is represented at every Board meeting.

It will at once be objected that it is one thing to select a Director to N.S.P.E. and quite another to find a man willing to attend meetings in New York at his own expense.

The answer to that is that you, Member State Societies, will find sooner or later that you can far better afford to pay your Director's way to the meetings than you can afford to be unrepresented.

If only a small group of State Societies is represented at the Board meetings, then those Societies will very naturally act on those matters which interest them. They will run N.S.P.E. and the rest of you can not blame them for looking out for themselves and the interests of their members.

It is much to be desired that N.S.P.E. shall become strong enough financially to provide travel allowances for Directors so that the burden of representation can be equalized. However, that happy situation does not obtain as yet. The solution, more members and the correspondingly greater income, rests with you but this is about board meetings.

The men who have organized N.S.P.E. and have carried it on thus far deserve great credit and gratitude for their work. However, it is axiomatic that in the long run any people, any organization will get the worst government that it will tolerate. N.S.P.E. will not be the strong, virile organization you want unless you see to it through representation in its affairs.

This is essential if you want N.S.P.E. to be a NATIONAL Society of Professional Engineers, responsive to your wishes. Dig down and get your representatives to the Convention and the Board meetings.

ANNOUNCEMENT

SECOND ANNUAL CONVENTION

Mayflower Hotel, Washington, D. C.

October 12th and 13th, 1936

By WILLARD S. CONLON, *Exec. Sec'y.*

The second Annual Convention Committee of the National Society of Professional Engineers is preparing plans for the Convention which will be held in Washington, D. C., at the Mayflower Hotel on October 12th and 13th, 1936. As the Convention will convene on Monday, October 12th, the Committee is considering plans for a pre-convention program of sightseeing and entertainment on October 10th and 11th, the Saturday and Sunday immediately preceding the Convention.

NOMINATIONS FOR OFFICERS

National Society Of Professional Engineers

The Committee on Nominations invites recommendations from all state societies as well as from members.

The officers to be nominated are:

President; Vice-President, 4 if Constitutional Amendments pass, (2 if Constitutional Amendments do not pass); Treasurer.

The following is the personnel of the Committee:

Engineer Samuel I. Sacks, Chairman, 921 Widener Building, Philadelphia, Pa.

Engineer John W. Dunham, 803 Quintana Place, N. W., Washington, D. C.

Engineer C. A. Lashbrook, 1145 N. W. Second Street, Oklahoma City, Okla.

Engineer Wm. C. Kammerer, 823 Prospect Avenue, Cleveland, Ohio.

CIVIL SERVICE OPPORTUNITIES

Detroit Seeks Engineers

Attention is invited to a series of examinations to be held by the Detroit Civil Service Commission for certain positions in connection with the Detroit Sewage Disposal Project. These examinations will be given twice, the first time early in August in Detroit only (except that the examinations for the four civil engineering positions given first in the list below will be held also in Chicago, New York and Columbus) and the second time on September 10, 1936, on which date all the examinations will be given in 25 cities, including Milwaukee. This office has consented to assist in this program and takes pleasure in giving this publicity in the hope that it will help some Milwaukee men to secure good locations.

The list is as follows:

Senior Civil Engineering Draftsman, salary $2640. 20 vacancies; Junior Civil Engineer (Sanitary Design), $2880. 10

(*Continued on page* 22)

STATE ACTIVITIES REPORTED

REPORTS THROUGHOUT COUNTRY INDICATE INCREASED INTEREST

The American Engineer acknowledges the contributions of correspondents and intends, as soon as the organization of its editorial staff is completed, to make proper announcements.

Correspondents are urged to forward news items in time for the same to reach the Editor before the fifth of each month.

NEW JERSEY

Society Addresses Engineers

An open appeal for the support of the New Jersey and National Societies has been addressed to eligible engineers who are not as yet members of these bodies. The appeal contains a list of Chapter Treasurers, and all professional engineers are invited to communicate with the chapter which represents his county in the New Jersey Association.

NEW JERSEY ASSOCIATION OF PROFESSIONAL ENGINEERS AND LAND SURVEYORS

(A letter to all licensed Engineers in New Jersey who are not members of the New Jersey State Association and the National Society of Professional Engineers.)

July 1, 1936.

Dear Engineer:

We have reached the half-way mark in the year 1936. We are making progress but the response to our appeal for members has been disappointing. Your State Association has endeavored through the media of two regional meetings to interest you in meeting with members of our State and National Societies. We would have welcomed the opportunity thus offered to personally discuss with you the advantages gained by being affiliated with these Societies. You would have seen that these Societies are not selfish, self-prompting set-ups. The State and National Societies are working for the good of each licensed Engineer throughout the Nation. They are handicapped in that work by an apparent lack of interest of those whom they are striving to help.

Those of you who have been fortunate enough to have retained worthwhile employment during these past few years may not have realized the need of affiliating with the State Association and possibly have failed to appreciate the need for aid on behalf of the Engineers who have been less fortunate.

The Engineers who were out of employment and were forced to enter into the various relief set-ups, had to accept pay for their services that was on a level with that of common labor.

The State and National Societies attempted to rectify this injustice and were partially successful although they were not backed by a representative membership. We need your support.

There have been various laws and regulations promulgated during these hectic days which, if enacted, would have seriously encroached upon and curtailed the prerogatives of the Professional Engineer. These laws and regulations would have seriously affected you and your work. The State and National

(*Continued on page* 18)

CALIFORNIA

Practice Restricted

A recent decision of the Supreme Court has been outlined by Secretary H. M. Jones of the Registration Board, in the following manner:

"The California Supreme Court in rendering a recent decision in the case, In the Matter of Estate of George H. Miller, 91 Cal. Dec. 435, recognizes for the first time, of legal record, the Civil Engineers' Registration Law as one of the licensing statutes of the state.

The case in question was one concerning the legality of the county counsel (Los Angeles County) to act as the attorney for the public administrator. The respondent seriously urged that the rendering of legal services by a county counsel to a public administrator in his official capacity and permitting the county to profit from the fee so earned constitutes a violation of the prohibition against the practice of law by a corporation, and also constitutes a violation of the several provisions of the State Bar Act.

The court said in part:

'The county is no more practicing law in this case than when the county counsel represents the county or a school district in a court or when the district attorney represents in court the county or its officers, or when the public defender represents private persons in criminal cases. The county counsel and district attorney and public defender, of course practice law—it is one of the qualifications of their office—but it is they who are practicing law and not the county. From some of the activities of the District Attorney the county makes a profit as where a bond is forfeited.'

The court then goes on to consider a situation arising under the engineering act in connection with state supervision of dams, stating:

'There are other situations in which state officers qualified in some profession perform governmental functions for which fees are charged, which fees belong to the governmental agency but it has never been claimed that the governmental agency involved is practicing those professions.

'Thus, under the statute of 1929, page 1505, relating to the supervision of dams by the department of public works, that department through the state engineer is authorized to collect fees for engineering services rendered by the department in passing on plans and specifications and in supervising the construction of dams. Could it be contended that the state is practicing engineering in violation of Stats. 1929, page 1640, (Civil Engineers Act.—Ed.) making it a misdemeanor for any person not au-

(*Continued on page* 19)

CONNECTICUT

Congress Aftermath

The following acknowledgment from Chairman Harris in the matter of the recent Engineering Congress indicates that the idea has carried far beyond Connecticut.

July 27, 1936

Mr. Johnstone Vance, Editor
New Britain Herald
New Britain, Connecticut
Dear Mr. Vance:

The Executive Committee, appointed by the AMERICAN SOCIETY OF MECHANICAL ENGINEERS, THE NATIONAL SOCIETY OF PROFESSIONAL ENGINEERS, THE ENGINEERS CLUB, and THE CONNECTICUT SOCIETY OF PROFESSIONAL ENGINEERS, four national, state, or local, entirely independent organizations, representing the Technical, Educational, Social, and Economic activities of the Engineering Profession, who jointly sponsored the CONNECTICUT ENGINEERING CONGRESS held in Bridgeport, JULY 25th, at the Stratfield Hotel, and in the High School Auditorium, direct me to express their great appreciation of the generous way that you have treated this initial effort upon the part of the organized professional engineer to perform a great national public service.

That many came to the Convention through the wide publicity to which you so generously contributed is without question, but that you were able to carry the message to those thousands who could not attend, was much more valuable to your public than the successful accomplishment of the conference in Bridgeport alone.

So, I not only extend our hearty thanks in behalf of the Committee, but on behalf of every member of our vast profession, whom you have, by your articles and editorials, placed in closer and more sympathetic contact with his fellow-man whom he serves.

We have received notes and requests from all over the State of Connecticut, from New York, Pennsylvania, Rhode Island, North Carolina, Washington, D. C., etc. and even from the distant States of Texas and Oklahoma, that we repeat this Congress in 1937, and plan to do so, if we may count again upon your effective help.

Yours very sincerely,
HARRY E. HARRIS, *Chairman*
Executive Committee
Connecticut Engineering
Congress

REGISTRATION BOARD NEWS

The Board of Registration has issued a preliminary roster of registered engineers, as of June 15th, 1936. The pub-

(*Continued on page* 20)

NEW YORK

Speedy Amendments of Building Laws Necessary

On June 19, an apartment house in the course of construction in Bronx County collapsed. Eighteen men were killed and many more injured. On July 24, six second-degree manslaughter indictments were found by the Bronx Grand Jury against the architect, the plan examiner, a building inspector, the masonry contractor, and the owners and builders.

To prevent recurrences of catastrophes of this character a Joint Committee of Professional Engineers and Architects of Bronx County has been formed to recommend the fortification of existing building laws and regulations. This committee is composed of: Architects—Matthew W. Del Gaudio, Samuel J. Kessler, W. Koch, H. Nordheim; Engineers—George C. Diehl, Charles F. Giraud, Prof. Alexander Haring, Raphael J. Smyth. George J. Cavalieri, and Raymond J. Van Wagner, Presidents, respectively, of the Bronx Society of Architects and the Bronx County Chapter of Professional Engineers are ex-officio members of the committee.

The Engineering News-Record of July 30, in an editorial notable for its cogency and conciseness, recommends certain changes in state and city laws governing building planning and operation, the cooperation of the engineers and architects of the city in approving such changes, and prompt action by them in securing their early effectuation.

The suggested changes are general in character, and development, amplification and detailed formulation are necessary before they can be presented for official and public consideration.

City-wide cooperative action by engineers and architects is essential if remedial legislation of maximum public benefit is to be secured. The opinion and action of the Bronx engineers and architects will be valuable; but the combined thought, judgment and power of the complementary professions of Architecture and Engineering throughout the entire city will be of immeasurably more value and effectiveness.

The speedy crystallization and formulation of this opinion and action is most desirable. This case has been given wide publicity by local and metropolitan news organs. Public attention has been focussed upon the disaster and widespread indignation has been aroused at its occurrence. Public opinion will support constructive proposals made by organized groups qualified to make authoritative recommendations. The members of the County Chapters of Professional Engineers and the County Societies of Architects possess the highest credentials of competence and character. Their ability and probity command public confidence. A great opportunity for signal public service presents itself before the engineers and architects of the City; they have a splendid common ideal—the safe-guarding of life, health and property—and that ideal will be brought to nearer realization by immediate response to the challenge which circumstances offer.

Below is a copy of the editorial above referred to:

"TIME TO ACT"

Indictments brought against six men by the grand jury investigating the col-

(*Continued on page* 20)

OHIO

REGIONAL SOCIETIES

Names And Addresses of Officers

The following listing of officers of the various Ohio engineering groups should be of value to engineers of Ohio. It is suggested that the same be cut and kept available.

LIST OF OFFICERS OF REGIONAL SOCIETIES OF PROFESSIONAL ENGINEERS—OHIO

Akron Society of Professional Engineers

President, F. P. Brown, B. F. Goodrich Company, Akron.
First Vice-President, E. H. Spalding, Ohio Bell Telephone Co., Akron.
Second Vice-President, M. L. Davis, Firestone Tire and Rubber Co., Akron.
Secretary, G. E. Soderberg, Municipal Building, Akron.
Treasurer, James Forrest, Babcock & Wilcox Co., Barberton.

Belmont Regional Society of Professional Engineers

President, Frank H. Frazier, St. Clairsville.
Secretary, W. L. Turner, Court House, St. Clairsville.

Canton Regional Society of Professional Engineers

President, Homer E. Anderson, Court House, Canton.
First Vice-President, Frank L. Ritter, 125 North Ave. NE, New Phila.
Second Vice-President, Dean G. Roberts, State Highway Dept., Carrollton.
Secretary, William L. Swanson, Court House, Canton.
Treasurer, John A. Shisler, City Hall, Canton.

Central Ohio Society of Professional Engineers

President, Bruce D. Greenshields, Granville.
Secretary, E. Gene Fournace, Ohio Power Co., Newark.

Cuyahoga County Society of Professional Engineers

President, William C. Kammerer, 823 Prospect Ave., Cleveland.
Vice-President, J. Rowland Brown, 5802 Carnegie Ave., Cleveland.
Secretary, John J. Wirts, W. 58th and Bulkley Blvd., Cleveland.
Treasurer, W. D. Young, 18423 Winslow Road, Shaker Heights.

Dayton Society of Professional Engineers

President, Nelson J. Bell, 1329 3rd Natl. Bldg., Dayton.
Vice-President, L. M. Dissinger, 7 Dixon St., Dayton.
Secretary-Treasurer, Jay A. Craven, 212 Central Ave., Dayton.

Elyria—Lorain—Norwalk—Sandusky Society of Professional Engineers

President, Harold F. Gerold, Court House, Sandusky.
First Vice-President, Harwood Lersch, Court House Annex, Elyria.
Second Vice-President, E. G. Ankrom, State Highway Dept., Norwalk.
Secretary, Edward E. Hartung, City Hall Annex, Sandusky.
Treasurer, James W. Griffin, 848 Lovett Place, Lorain.

Franklin County Society of Professional Engineers

President, Robert A. Allton, City Hall, Columbus.

(*Continued on page* 20)

OREGON

Illegal Practice Reports

The Oregon Roster of Professional Engineers contains a form intended for the purpose of reporting violation of the Practice Act.

STATE BOARD OF
ENGINEERING EXAMINERS,
632 Railway Exchange Building,
Portland, Oregon.

Gentlemen:

The following person, persons, or companies, whose names do not appear in the last list of Registered Engineers, are doing engineering work in the State of Oregon. I herewith submit the following information and evidence:

Name .....
Address .....
Character of work .....
.....
Dates work was in progress .....
.....
.....
Names and addresses of witnesses:
.....
.....
.....
.....
Documentary evidence, such as signed reports, drawings, specifications, blue prints, etc., should be submitted if possible.

(Signed) Name .....
Address .....
.....

Forms such as the above might well be inserted in copies of every state roster.

PENNSYLVANIA

State Board Society Members

It is interesting to note that the entire personnel of the Pennsylvania Board of Registration for professional engineers are all members of the State Society. This is an objective for all state societies to keep in mind. The relations between the public officials of Pennsylvania, including the Governor of the State, and the Professional Society have been most cordial and indicate that cooperation is an opportunity as well as a duty.

NEW JERSEY

(*Continued from page* 17)

Societies have combated these proposed laws and regulations with some success but their efforts would have been far more successful had you been a member of the Societies.

The Professional Engineer must organize to protect the Engineering Profession. We have launched the National Society of Professional Engineers as our national organization. It is our Headquarters Unit. The National Society has been in existence but two years and has made remarkable strides. Though handicapped by the lack of representative membership it has, with the aid of the State Member Societies, succeeded in no small extent in advancing the welfare of the Engineer and in gaining recognition for the Engineering Profession.

Do you realize that in our State we have less than four hundred members out of a potential membershp of some three thousand? Do you appreciate that less than fifteen per cent of the licensed Engineers in the State are doing their utmost to smooth the pathway for *all* the licensed Engineers? Do you stop to

think that this small group is giving its time and is footing all the bills for the general good of the Engineering Profession? Do you know that the total cost for you to become affiliated with both the State and National Societies is less than sixty cents per month and including the local Chapter dues, the average cost is not more than seventy-five cents per month?

If you do realize these facts, how can you justify your attitude of aloofness and indifference? You have a responsibility.

Is your profession worth fighting for? If it is, won't you do your part to help. You need your State and National Societies. They not only need but must have your support to continue to function effectively in the interest of all engineers.

We all have a sacred duty to the Engineers who are coming behind us. Your boy may be one of them. If we can now establish the Engineering Profession in the public mind, if we can gain for that Profession proper recognition as a Profession, a recognition comparable to that accorded to the Legal and Medical Professions, we will have insured for the Engineers to come, at least a chance to avoid the tribulations that have been borne by the majority of the Engineers during the past five years.

Will you kindly give this matter your serious attention and consideration and act immediately in accordance with what your reasoning and conscience dictate.

Sincerely,

GEORGE F. RANDOLPH, *President*

P. S.—The next State Association Regional Get-to-gether will be held at Shark River Hills, Belmar, N. J. on Saturday, September 12, 1936.

Chapter Treasurers

Essex County Chapter—Engineer P. H. Glannon, 22 Northfield Road, West Orange.

Hudson County Chapter—Engineer James A. Foley, 429 Fairmount Ave., Jersey City.

Union County Chapter—Engineer Thomas A. Jenkins, 335 Linden Road, Roselle.

Passaic County Chapter—Engineer Abraham Verduin, 96 Marion Street, Paterson.

Bergen County Chapter—Engineer Walter M. Shirra, 371 Maple Avenue, Oradell.

Morris County Chapter—Engineer Wm. A. Kays, 20 Raymond Road, Mt. Lakes.

Middlesex County Chapter—Engineer A. T. McMichael, P. O. Bldg., South Amboy.

Monmouth County Chapter—Engineer Leo K. McKee, 16 McLaren St., Red Bank.

West Jersey Chapter—Engineer Paul P. Rice, P. O. Box No. 22, Phillipsburg.

South Jersey Chapter—Engineer J. S. Cattell, Wenonah, N. J.

Headquarters Chapter—Engineer E. F. Weeks, 200 E. Fifth St., Paterson, N. J.

The First Annual Outing of the Association—Monmouth Chapter, Host

The annual outing of the Monmouth County Chapter of the New Jersey Association of Professional Engineers has become so popular that the state body has requested the same be made a state regional meeting.

The Monmouth hospitality, the location and the efficient manner in which the Chapter has handled this affair in previous years, have made it one of the outstanding events for engineers throughout the state. As a result, this will be the first annual outing and regional meeting of the Association, with the Monmouth County unit as Host Chapter. Many visitors from New York and Pennsylvania have already made reservations for this year.

The courtesies extended by the Shark River Hills Association are acknowledged with appreciation. Below is an announcement of the outing.

New Jersey Association of Professional Engineers and Land Surveyors notice to all members, guests and friends:

Annual outing, Shore Dinner and State Regional Meeting—Host: Monmouth County Chapter.

This annual affair, usually a feature of the Monmouth County Chapter, is to be expanded, to provide entertainment and a social get-together for Engineers, ladies, children and friends.

Among our guests will be representatives of the National Society of Professional Engineers.

The date: Saturday, September 12th, 1936. All day.

The cost: $2.50. Children under 14 years at half price.

The place: The Shark River Hills Hotel and grounds. (Located on Shark River, West of Avon-by-the-Sea, N. J.)

Golf, tennis and horseshoe pitching tournaments, morning at 10. Swimming, boating, fishing.

Dinner served at 3:00 p. m. Clam chowder, steamed clams, fish, lobster, chicken, corn on cob, vegetables, dessert. All you can eat!

Special dressing rooms for golfers and swimmers. No extra charge except for green fee.

The Committee requests your prompt cooperation in sending in your reservations. Mail your check to Leo K. McKee, Chairman, not later than September 7, 1936. No reservations will be made unless accompanied by check or money order. So that you may be properly taken care of, a guarantee of number attending must be made by September 7, 1936.

Entries for golf, tennis and horseshoe pitching tournaments must be made not later than September 7, give club handicaps. Golfers are hereby notified to report and register at Hotel and secure tickets before play.

A meeting of State Association Members will be called at 2:00 p. m.

LEO K. MCKEE, *Chairman.*

.....

LEO K. McKEE
16 McLaren Street
Red Bank, N. J.

Please reserve.....dinner tickets, for which I enclose $..... I will play (golf) (tennis) (horseshoe pitching). My handicap is.....
Signed .....
.....
.....

CALIFORNIA

(*Continued from page* 17)

thorized to practice engineering? Obviously not.

'The state in furnishing engineering or architectural services for which it collects a fee is not practicing civil engineering or architecture. It is engaged in the performance of a public service authorized by statute. The same reasoning applies to a public administrator and the county counsel.'

The Board of Registration for Civil Engineers interprets the above to mean that the practice of civil engineering is solely the accomplishment of an individual and that ANY individual so practicing, regardless of the nature of his employment, comes within the provisions of the Registration Law, unless he is specifically exempt as provided in section 13 of the act."

State Board News

The July issue of the "Registered Civil Engineers", the official bulletin of the California State Board of Registration contains a column on questions and answers from which the following have been excerpted as of interest to engineers generally, and most important to those of California specifically.

Is it mandatory that a registered civil engineer place his seal on all plans, specifications, reports, etc.?

No, if the engineer is practicing in his own name. However, all plans, specifications, reports, etc., prepared by an employee of, or member of a firm, partnership, or corporation, must be signed and be stamped with the seal of each registered civil engineer in specific and responsible charge of the preparation of the same. (See Section 15 of the Act)

Is it permissible for a registered civil engineer to practice structural engineering without specific authority from the Board?

A registered civil engineer has authority to practice civil engineering in all of its branches, including structural engineering. No person may use the title structural engineer, unless authority has been granted by the Board. (See Section 1-b of the law)

Is a registered civil engineer authorized under the Civil Engineers' Registration Act to sign plans prepared by another?

A registered engineer is given authority by his certificate of registration to "practice" civil engineering, and when he signs plans prepared by anyone other than himself, or an employee directly under his personal supervision, he, by inference, at least, holding himself out as the author of such plans, and is thereby misrepresenting facts, which it is possible to interpret as a violation of Section 12 of the Engineers' Act. The penalty for violation of Section 12 is suspension or revocation of certificate.

Must a surveyor or civil engineer file a map or record or survey, of each survey made by him?

It is not necessary to file a record of survey, if the surveyor's or engineer's survey agrees with existing records on file in a public office. If, however, there is a discrepancy between the latter survey and existing records, or the survey discloses evidence that by reasonable analysis might result in alternate positions of lines or points, a record of survey must be filed with the County Surveyor. (See Sec. 11.3, Surveyor's Act)

How much time will I have to renew my certificate of registration as a civil engineer, after it expires on June 30th?

The act provides that certificates which have expired for failure to pay the annual renewal fee may be reinstated within one year, provided the applica-

tion for reinstatement is accompanied by the annual renewal fee of $5.00 and statutory penalty, which may not exceed $5.00. It is unlawful for an engineer to engage in the practice of engineering beyond the 30th of June unless his certificate has been reinstated. Any engineer so practicing is liable to prosecution. The penalty for such violation is punishable by a fine of not more than $500 or by imprisonment not to exceed three months, or by both fine and imprisonment.

(The above answer also applies to a land surveyor.)

If my renewal fee has not been paid on or before June 30, 1936, will my name appear in the 1936-37 roster.

The roster will go to press about July 20, 1936. If the renewal fee and penalty is not received in the Board's office before this last mentioned date your name will not appear in the 1936-37 roster.

CONNECTICUT

(*Continued from page* 17)

lication also contains the following code of ethics:

"A Code Of Ethics For Engineers And Surveyors:"

That the dignity of his chosen profession may be maintained and that proper service may be rendered individuals and the public, it is the duty of every engineer and surveyor:

1. To carry on his professional work, with fairness to all concerned, fidelity to clients and employers and devotion to high ideals of personal honor;

2. To treat as confidential his knowledge of the business affairs or technical processes of clients or employes when their interests require secrecy;

3. To inform a client or employer of any business connections, interests or affiliations which might influence his judgment or impair the equitable quality of his services;

4. To accept financial or other compensation for a particular service from one source only, except with the full knowledge and consent of all interested persons;

5. To advertise only in a modest manner and with due regard to the dignity of his profession;

6. To refrain from using improper or questionable methods of soliciting professional work, and to decline to pay or to accept commissions for work secured by such methods;

7. To avoid using unfair means to win professional advancement or to injure unjustly the chances of another to secure and hold employment;

8. To refrain from associating himself with, or allowing the use of his name by, any enterprises of questionable character;

9. To co-operate with engineers and engineering agencies in the dissemination of engineering information and experience;

10. To refrain from using the advantage of a salaried position in public service to compete unfairly with other engineers or surveyors;

11. To give due credit to work of other engineers when using or adapting their designs to projects in hand;

12. To consider his profession as affording him distinct opportunity to apply his special talents for the service of society.

State College Appeals To Public

At the recent Engineering Congress held in Bridgeport, the following outline of the problems and hopes of the Connecticut State College Engineering School were set forth:

Relatively few people in the State of Connecticut are familiar with the situation of engineering education at the state college. Because of recent enactment of laws affecting engineers in the state and other states and because a great many young men find it impossible to leave the state to study engineering, it is desirable that a number of facts concerning this matter be presented to the state. Connecticut State College has for 16 years received Federal funds specifically for instruction in engineering, and is now offering a four-year course in engineering leading to the Degree of Bachelor of Science in Engineering. Every consideration to discontinue engineering at Connecticut State College because of its present inadequate facilities for offerings in this field has met with the determination to build up its engineering course to meet adequately the needs of interested and well qualified young men who reside in the state.

Only seventy out of approximately 800 students in engineering with homes in Connecticut are studying at Connecticut State College. Approximately six hundred of these boys go out of the state for engineering study. It is not this group who represent a major problem to the state. The first problem is that of providing better facilities for those boys who are at present enrolled for engineering study at Connecticut State College. The second problem is that of providing an adequate program for those well qualified boys of this state who cannot afford to go out of the state for engineering study and who are unable to attend Connecticut State College because of limited and inadequate facilities. There are indications that a large majority of engineers in industry in Connecticut come from outside of the state resulting in deserving young men in this state being kept out of the key positions in industry. Engineering registration laws require training in an accredited course in engineering or equivalent. Connecticut State College's course in engineering is below accreditation standards because of the lack of building facilities and equipment. The building facilities available for engineering at Connecticut State College at the present time are entirely inadequate to house even the present equipment and entirely too small for the activities of the present enrollment. Furthermore the building is not safe for occupancy. The engineering laboratory equipment at Connecticut State College is about twenty percent of that needed to properly teach engineering. It will be necessary for those interested in engineering throughout the State of Connecticut, not only young men, their parents and relatives, but those who are interested in developing the economic status of the state through its industries, to develop its greatest natural resource—the youth of the state—in making it possible for all those who are interested and have the mental capacity to obtain a technical education at minimum expense.

NEW YORK

(*Continued from page* 18)

lapse of an apartment house in New York City on June 19 indicate that the committee of experts that examined the wreckage came to the conclusion that both the design and construction were faulty. The architect, masonry contractor, and building inspectors are among the men charged with second-degree manslaughter, thus implying that the whole system by which the public expects to obtain protection against such accidents was found to have broken down.

First there is the building code. New York's code like that of many other cities, has loopholes that favor the speculative builder and it does not call for the high type of inspection that is believed to be essential to any large building operation. But it has not been possible to eliminate the defects, chiefly because those who profit by a low grade code or one that is not properly enforced were more influential than those who sought to improve the code. The stock argument of real estate interests that stiffening the building code would stifle building construction had more effect than the possible calamities pictured by those who saw danger in the code's defect.

The apartment house collapse in the Bronx on June 19 may bring about the needed changes in New York City's building code. But an improved code alone will not assure the necessary safeguards. Licensed architects and engineers must be required to sign an affidavit after the job is completed that it corresponds to the plans in every particular. Most important, there must be an end to selling of plans and the substitution of selling of services. With such services should go continual field inspection on the part of the designer, the same as is common practice on bridge work. The cost of such extra service is almost negligible but that is beside the point. We must build safe buildings or not build at all.

Already, as a result of the Bronx accident, architects and engineers in that borough have set up a committee to take up revision of both state and city laws affecting building construction. But city-wide action is needed. Engineers and architects will not be living up to their public responsibilities if they do not act promptly and effectively in this matter. They can obtain needed changes in state and city laws if they press for changes while this accident is still fresh in the public mind.

OHIO

(*Continued from page* 18)

First Vice-President, G. R. Logue, Court House, Columbus.
Second Vice-President, Fred Swineford, P. W. A., New P. O. Bldg., Columbus.
Secretary, William S. Dun, 903 State Office Bldg., Columbus.
Treasurer, J. R. Shank, Engr. Exper. Bldg. OSU, Columbus.

Hamilton County Society of Professional Engineers

President, E. A. Munyan, Union Gas & Electric Co., Cincinnati.
Vice-President, W. W. Parks, Mariemont Inn, Cincinnati.
Secretary-Treasurer, E. A. Gast, Court House, Cincinnati.

(*Continued on bottom of next page*)

OHIO—(*Continued from previous page*)

Engineer's Salaries

The Ohio Society has prepared a preliminary report on the subject of the engineer's salaries. This report covers every part of the country and is illuminating. The attention of the reader is directed to the foot note.

PRELIMINARY REPORT
SURVEY OF HIGHWAY ENGINEERS' SALARIES
by
OHIO SOCIETY OF PROFESSIONAL ENGINEERS
June, 1936

State	*Director (Coms.)*	*Asst. Dir. (Chf. Engr.)*	*Chf. Engr. Constr.*	*Chf. Engr. Maint.*	*Chf. Engr. Bridges*	*Division Engrs.*	*Resident Engrs.*	*Classified Engrs.*
Alabama	3600	3360	3000	2100	2825	2825	2160	1800-2160
Arizona	.....	7500	5400	.....	4800	4800	3000	.....
Arkansas	5000	4200	3000	3600	3600	2700	2700	1800-3000
California	.....	10000	6300	6300	6300	6300	3600	3120-3600
Colorado	.....	7500	4800	4200	4800	3600	2700	-4000
Connecticut	.....	.....	.....	.....	.....	.....	.....	.....
Delaware	.....	.....	.....	.....	.....	.....	.....	.....
Florida	6000	4800	3600	4200	4200	3600	.....	2100-2700
Georgia	6000	4800	3600	.....	3600	3300	2200	-2200
Idaho	.....	.....	.....	.....	.....	.....	.....	.....
Illinois	.....	9000	5000	5000	5000	4400	.....	.....
Indiana (3)	5200	4500	3780	3780	3780	3000	.....	1580-2640
Iowa	.....	8500	4800	4800	4800	3750	2550	.....
Kansas	.....	5000	4200	4200	4200	3600	2700	up to 4200
Kentucky	.....	.....	.....	.....	.....	.....	.....	.....
Louisiana	.....	.....	.....	.....	.....	.....	.....	.....
Maine (3)	3500	6000	4680	4680	4680	.....	.....	2080-3120
Maryland	.....	.....	4291	.....	4080	.....	.....	.....
Massachusetts (3)	6000	7200	6000	6000	6000	5100	2760	1140-3480
Michigan	7500	6000	5800	4600	4600	4600	3200	2400-3800
Minnesota	5400	5400	4560	4380	4380	3300	.....	1800-2058
Mississippi	.....	.....	.....	.....	.....	.....	.....	.....
Missouri	.....	10000	7500	6000	6000	4200	2760	1800-3000
Montana	.....	6000	4800	4800	4800	3600	3300	2100-4800
Nebraska	4000	3600	3400	3400	3200	2940	2100	1560-2100
Nevada	5000	4200	3600	.....	.....	3600	2880	1800-3600
New Hampshire	.....	4800	.....	.....	.....	2700	2400	.....
New Jersey (4)	7500	15000	10000	7200	7500	5100	3900	1980-3000
New Mexico	7800	.....	4800	4500	3900	4200	2100	.....
New York	.....	.....	.....	.....	.....	.....	.....	.....
North Carolina	.....	4800	3750	.....	3150	3090	1680	.....
North Dakota	3200	.....	3600	3000	3000	2700	.....	-2000
Ohio	6500	5000	4500	4500	4500	4000	2700	2000-4200
Oklahoma	.....	4800	3600	3600	3600	3600	3600	.....
Oregon	5250	.....	4250	4250	4250	3850	2600	2100-2800
Pennsylvania	.....	12000	7500	7500	7500	7500	.....	3600-4200
Rhode Island	.....	.....	.....	.....	.....	.....	.....	.....
South Carolina	.....	5200	4200	.....	4200	3900	2760	.....
South Dakota	.....	3900	3300	3400	3300	2820	.....	1920-2400
Tennessee	4200	4200	3300	3300	3000	3300	2400	1800-2400
Texas	6900	4750	3850	3850	3850	4896	3840	1320-3840
Utah (3)	3500	4200	3840	3840	3840	3300	2820	1800-2820
Vermont	4500 off.	2280	3500	.....	3500	.....	1920	1080-2400
Virginia	.....	7500	4500	4500	4500	4080	3000	.....
Washington	4000 off.	4800	4980	4800	4800	4800	2760	2700-3600
West Virginia	6000	4400	3900	3900	3300	3420	1920	1500-2100
Wisconsin (3)	5000	6000	5000	5000	5000	4500	3000	3000-4000
Wyoming	.....	6000 off.	4200	.....	3900	3990	2640	.....

NOTE: The above tabulation has been compiled from official information supplied by the respective State Highway Departments, and has been made to fit Ohio classifications as nearly as possible. Corrections will be made in final report, provided errors are noted and information furnished Ohio Society of Professional Engineers, Columbus, Ohio.

Hocking Valley Society of Professional Engineers

President, H. J. Ong, 223 Oak Street, Athens.
Vice-President, C. C. Salts, State Highway Dept., Logan
Secretary-Treasurer, John W. Dowling, State Highway Dept., Athens.

Ironton Society of Professional Engineers

President, B. E. McCown, State Highway Dept., Ironton.
Secretary, Fred Hardy, Jr., Memorial Hall, Ironton.

Mahoning Valley Society of Professional Engineers

President, W. H. Dittoe, P. O. Box 298, Youngstown.
Vice-President, Lloyd C. Kirk, Court House, Lisbon.
Secretary, L. T. Fawcett, Court House, Youngstown.
Treasurer, Ralph G. Taylor, 186 Oak Knob Ave. NE, Warren.

Marion District Society of Professional Engineers and Surveyors

President, H. D. Schoonover, Mt. Gilead.
First Vice-President, C. F. Skidmore, Court House, Marysville.
Second Vice-President, H. R. Krebs, State Highway Dept., Marion.
Secretary, Thomas L. Gilliland, State Highway Div. Office, Delaware.
Treasurer, Tom S. Cathers, City Hall, Marion.

Maumee Valley Society of Professional Engineers

President, C. Ramond Hanes, State Highway Dept., Lima.
First Vice-President, S. S. Evans, 617 Holgate Ave., Defiance.
Second Vice-President, H. H. Hawisher, 4115 Jameson Ave., Lima.
Secretary, R. H. Sheik, State Highway Dept., Lima.
Treasurer, Eugene P. Light, Paulding.

Midwestern Ohio Association of Professional Engineers and Surveyors

President, W. A. Montgomery, Court House, Bellefontaine.
Secretary, O. W. Greubmeyer, State Highway Dept., Sidney.

Morgan—Noble—Washington Society of Professional Engineers

President, C. W. Stacy, Court House, Marietta.
Vice-President, T. Dye Barnhouse, Court House, Caldwell.
Secretary-Treasurer, Fred C. Smith, Court House, McConnelsville.

North Cent. Ohio Engineers Association

President, Paul E. Glasgow, Court House, Wooster.
Vice-President, James A. Atkinson, City Hall, Galion.
Secretary, G. T. Belsheim, State Highway Dept., Ashland.
Treasurer, Randall C. Barrett, Court House, Mansfield.

North East Ohio Society of Professional Engineers

President, E. N. Luce, Court House, Jefferson.
Vice-President, J. M. Crabbs, Painesville.
Secretary, A. B. Wilson, Court House, Painesville.
Treasurer, C. E. Davidson, State Highway Dept., Chardon.

Ohio Northern University District Society of Professional Engineers

President, Otto C. Gohlke, City Hall, Findlay.
Vice-President, C. G. Knoblock, Carey.
Secretary, John S. Sawvel, 120 N. Main St., Findlay.
Treasurer, Dan Reidel, 120 N. Main St., Findlay.

Portsmouth Society of Professional Engineers

President, Henry K. Martin, State Highway Dept., Portsmouth.
Vice-President, Arthur E. Wall, Court House, Portsmouth.
Secretary-Treasurer, H. C. Growdon, 920 29th St., Portsmouth.

Southern Ohio Society of Professional Engineers

President, Frank W. Turner, State Highway Div. Office, Delaware.
Vice-President, Edwin F. Bearce, W. 5th St., Chillicothe.
Secretary, William L. Boulware, State Highway Dept., Hillsboro.
Treasurer, E. C. Zimmerman, Seaman.

S. O. S. Society of Professional Engineers

President, William F. Schepflin, Elks Bldg., Fremont.
First Vice-President, C. J. Peters, City Hall, Tiffin.
Second Vice-President, E. C. Hostrup, Port Clinton.
Secretary-Treasurer, George M. Lieber, State Highway Dept., Fremont.

Springfield Society of Professional Engineers

President, M. J. Bahin, 301 M. & M. Bldg., Springfield.
Vice-President, E. F. Sweetman, City Hall, Urbana.
Secretary-Treasurer, S. Van Bird, Jr., City Hall, Springfield.

Steubenville Society of Professional Engineers

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President, C. S. Finkbeiner, 1025 Nicholas Bldg., Toledo.
Vice-President, G. Warren Emery, 410 2nd National Bank Bldg., Toledo.
Secretary-Treasurer, Alex. S. Forster, 1520 Nicholas Bldg., Toledo.

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Second Vice-President, Cecil E. Neff, Court House, Eaton.
Secretary, Robert S. Fisher, State Highway Dept., Middletown.
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President, M. A. Gantz, Court House, Troy.
Secretary-Treasurer, William R. Kinder, Court House, Troy.

Zanesville Regional Society of Professional Engineers

President, Clarence M. Jay, State Highway Dept., Zanesville.
Vice-President, L. C. Lamb, State Highway Dept., Coshocton.
Secretary-Treasurer, William H. Neikirk, Court House, Zanesville.

THE FORGOTTEN ENGINEER

(*Continued from page* 16)

cial attorney, William H. Sexton, has been permitted to file objections to the Abbott plan for reorganizing the surface lines. Mr. Sexton asks that the reorganization be delayed until negotiations for a new franchise have been completed. He questions whether the company, under the plan, will be able to attract the new money needed for extensions and improvements.

Without reference to the merits of either the Abbott plan or the city's objections to it, *we venture to suggest once again that the traction situation in Chicago will never be settled satisfactorily by lawyers, politicians, or bankers, or all of them together. Essentially the problem is one of engineering.* Chicago's transportation facilities are inadequate and antiquated primarily because the lawyers, the bankers, and the politicians have tried to solve the riddle by themselves *without first calling in the engineer.* Obviously the job was too much for them. They will have their role to play, but it will be essentially secondary and cooperative. When an engineering plan is produced the lawyers can draw their contracts to make it feasible, the bankers can find the money to finance it and the politicians can negotiate their franchises. The criticism, advice and help of all these gentlemen will be welcomed at the proper moment, but today they are serving only to get the car riders nothing.

A generation and more have passed since anything resembling a thorough engineering study of the local transportation problem in Chicago has been undertaken. The movement of population within the city and the improvements in the transportation art necessitate a fresh approach. The ablest engineering talent in the field should be hired without delay to go into the subject thoroughly. Every available facility, including those now in use and those which might be used, such as steam railroad rights of way and subways, should be surveyed. Out of the survey should come a plan to the realization of which the city government, the bankers, and the lawyers could all turn their talents.

We have had no substantial improvements in twenty years because the lawyers, the bankers, and the politicians have been engaged through much of that time in quarreling over the fate of a number of moribund corporations. Public transportation in Chicago has been reduced to its present state because the service rendered by those corporations was insufficient in amount and thoroughly uncomfortable. New facilities will mean more business and more revenues for the companies, but new facilities can be financed only if there is an engineering plan which bankers and investors will approve.

The city has 60 million dollars and more in its traction fund. *The investment of half a milli n dollars, more or less, in hiring a board of engineers to plan a modern transportation system for Chicago is the essential first step toward giving the car riders decent service.* Incidentally, it is also the essential first step in giving those who have invested their money in the existing facilities a chance to get it back.

CIVIL SERVICE OPPORTUNITIES

(*Continued from page* 16)

vacancies; Junior Assistant Civil Engineer (Sanitary Design), $3240. 6 vacancies; Assistant Civil Engineer (Sanitary Design), $3600. 3 vacancies; Senior Architectural Draftsman, $2640. 14 vacancies; Junior Architectural Engineer, $2,880. 6 vacancies; Assistant Architectural Engineer, $3600. 1 vacancy; Senior Structural Engineering Draftsman, $2640. 16 vacancies; Junior Structural Engineer (Design), $2880. 8 vacancies; Assistant Structural Engineer (Design), $3660. 1 vacancy; Senior Mechanical Engineering Draftsman, $2640. 12 vacancies; Junior Mechanical Engineer (Mechanical Equipment Design), $2880. 2 vacancies; Senior Electrical Engineering Draftsman, $2,640. 5 vacancies; Associate Sanitary Engineer (Plumbing Inspection), $4200. 1 vacancy.

The position of Associate Sanitary Engineer (Plumbing Inspection) is permanent and examination will be held for it on September 10th only. The other positions are only for the duration of the Sewage Disposal Project and the examinations will be held both in August and on September 10th.

Application blanks and information sheets may be obtained by addressing the Detroit Civil Service Commission, 15th Floor, Water Board Building, Detroit, Michigan. Applications must be filed there, not here, but this office will cooperate by furnishing notary public service free of charge to those desiring it.

(*News Items continued. Please turn to next page*)

PUBLICATIONS

"The Professional Engineer"

The Professional Engineer prepared by Esther Lucille Brown and published by the Russell Sage Foundation is a compact, well written and informative monograph dealing with the present status of the engineering profession in the United States. Its contents deal with Engineering Education, National Associations, Number of and demand for engineers, salaries of engineers and trends in engineering. It contains tables and graphs compiled from data furnished from many sources.

Covering the National Society the publication has the following to say: "Within these eight organizations are represented not only the broad divisions of engineering, but professional education, licensing, and a new movement designed to advance the status of the professional engineer. A large majority of the many other engineering associations consist of groups organized along functional lines to further a special purpose or the interests of a particular industry. Of the few which fall outside these classifications, the National Society of Professional Engineers, established in 1934, deserves note. Its membership is limited exclusively to those who have been legally registered or certified. Its purpose is to protect the professional engineer who has spent many years in study, training, and experience as preparation for his career. Emphasis is centered upon the advancement of his social and economic welfare. Its goal is an Engineers' Registration Law and a State Society of Professional Engineers in every state, and the enrollment of all professional engineers as members of the national and constituent state societies. The American Engineer is the official publication of the Society."

In commenting on the National Society the author has missed the first and foremost purpose of this organization, which is concern for the public welfare. All its special endeavors and noted objectives are predicated upon the belief that the engineer has a duty to modern society and civilization, which he, more than any other agency, has made possible.

The attention of readers is directed to the preamble of the constitution of the Society which reads as follows:

PREAMBLE—Recognizing that service to Society, to State, and to Profession is the premise upon which individual opportunity must be builded, the National Society of Professional Engineers does herewith dedicate itself to the promotion and protection of the Profession of engineering as a social and economic influence vital to the affairs of men and of these United States.

Aside from a very pardonable oversight the publication merits recognition as a constructive endeavor and it is recommended to the attention of public and profession alike.

Canadian Year Book

The Year Book of "The Engineering Profession in British Columbia" for 1936 is, as in previous years, an interesting and instructive publication which sets forth information concerning the license law, its administration and the modus operandi incidental to the professional recognition of aspirants.

The publication also contains suggestions on the duties and incomes of engineers together with a list of persons entitled to practice engineering during the year 1936.

A CREED

(*Continued from page* 15)

and the traditions of the Engineering Profession, to stimulating public service within the Profession, to guarding high standards of professional honor, and to conserving and strengthening public confidence and esteem. Through membership and active participation in this organization, the individual Engineer renders his contribution toward making Engineering a greater, nobler, and more satisfying Profession than he found it.

19. *The most effective and enduring contributions to individual welfare are to be attained through cooperative efforts for the advancement of the Profession as a whole.* The National Society of Professional Engineers, with its State Societies, provides the medium for collective effort for the advancement of the Profession in public service and in public esteem.

20. *The most far-reaching benefit to our Profession and to all of its members lies in increasing the appreciation and respect of the general public for our Profession.* Our most important activity is in the field of Public Relations. We must bring home to the public, through the press, the radio, public assemblies and publications, the high qualifications of the Engineer, his Professional status, and the outstanding value and supreme importance of his service to modern civilization and human progress.

21. *The Engineering Profession and other legally established Professions have problems of mutual interest in legislation and in public service.* The National Society of Professional Engineers, through its Committee on Professional Relations, is establishing cooperative relations with other Professions.

22. *The Engineering Profession does not seek to interfere with the established rights of practice of any other legally recognized Profession.* At the same time, we have firmly recorded the principle that *we will not allow any other Profession to restrict the rights of practice of the Engineer.*

23. *In legislation, initiative and vigilance are the price of progress.* The National Society of Professional Engineers, through its National and State Committees on Legislation, is guarding and advancing the interests of the Profession and of the Public as affected by legislation.

24. *The Engineer is primarily a citizen.* The National Society of Professional Engineers is dedicated to stimulating public service within the Profession, and to impressing upon the public the high qualifications and availability of the Engineer to serve as a citizen in civic councils, planning boards, legislative bodies, and public office.

25. *Membership in a Profession involves a professional obligation and a public trust. It is therefore our guiding purpose to place service before profit, the honor and standing of the Profession before personal advantage, and the public welfare above all other considerations.*

AN ENGINEER'S RESPONSIBILITY

(*Continued from page* 14)

Editors and Editor of the Milwaukee Journal regrets that the Committee's letter and Flood Control Resolution came too late to be presented at their Annual Meeting, but writes that he will present the matter to their Society at the earliest opportunity.

Encouragement for the Committee in its work has been received from the sympathetic pen of T. B. Chambers, Head Section of Engineering, United States Department of Agriculture, Soil Conservation Service, who says, "Your organization is to be complimented on the comprehensive flood control plans it is advocating. We feel that any flood control plan to be most effective must embrace coordinated land use measures designed to decrease and retard run-off combined with mechanical works for stream control. It is especially gratifying to us to observe the provisions for soil and water conservation that are contained in these resolutions".

While Engr. Arthur E. Morgan, Chairman of the Board, Tennessee Valley Authority comments, "I am glad to have a copy of this resolution, and note with interest the suggestion for engineering studies to develop plans and the proposal for a unified engineering control."

If the interest in and the attention given to our efforts and endeavor by Statesmen, Editors, Government and State Departments, administrations, commissions, etc. continue to expand at the present rate, it may well be expected that fairly prompt action may ensue. It is urged that in order to perfect the enacting of proper state and federal laws to secure the success of water control and soil conservation plans under a unified engineering administration and to further ensure that they be carried through by professional engineers, that a flood control committee be appointed by professional engineers in every state charged with the duty of presenting resolutions, contacting their statesmen, securing the interest of the local press, cooperating with other civic bodies, and examining and advising on all bills, relative to the matter presented by their legislators to the United States Congress or to their State Legislature. This is a relatively easy job, but will be productive of great results for the country and for the recognition of the Professional Engineer.

FLOOD CONTROL

(*Continued from page* 12)

ments in design if necessary, should be taken into consideration. The project can then be treated as one of joint costs, and the joint costs allocated to the several beneficial uses.

Intangible benefits must also be taken into social accounting calculations. An *individual* is not in business "for his *health*," as he puts it, which means that he seeks only objectives measurable in profit returns. That point of view governs his benefit-cost calculations. A *society*, on the other hand, makes investments *only* "for its health" i.e., for the public welfare. Therefore, intangibles must come into the calculations, for public welfare is made up very largely of intangibles. The great floods of 1927 de-

stroyed not only millions of dollars of property in certain localities on the lower Mississippi, but through the loss of income occasioned locally, they restricted the volume of business throughout our entire economy. This fact is held to have played a part in starting the United States on the downward spiral of depression. The losses of the depression, in the nature of losses of income that will never be realized, already amount to some 200 billion dollars. There are many delicate inter-relations within our economic system analagous to those in the folk-saying that for want of a nail a shoe was lost, for want of a shoe the horse was lost, for want of a horse the rider was lost, and for want of the rider a battle was lost.

Social accounting must take into very special consideration the benefits realized from the prevention of losses of natural resources capital. Soil erosion specialists estimate the annual money loss of land removed from productive agricultural use each year at 400 million dollars. This is a loss of basic capital which means the loss of a continuing flow of income throughout the future. If we can stop this loss of basic capital, the cost of the preventive measures can be many times 400 million dollars, and yet the works will not have compelled a cost that would not have been incurred in any case. Erosion specialists tell us that the cumulative loss from erosion is not less than 10 billion dollars—most of it incurred since 1900. If we could have prevented it with 10 billion dollars worth of conservation works, the works would not have meant the incurring of any new cost.

No industry can survive which does not maintain its plant. No people can survive who do not maintain their resources. Because we have not in the past made expenditures to conserve our resources, does not mean that such expenditures were not necessary. It means that we have ignored some of the costs of the business of living. Paying dividends out of capital is social suicide. Nature does not balance her books in dollars, but in the availability and usefulness of her resources. The books of account of the American people show an increasing debit balance.

Our books of account also show an unbalanced application of human energies in this business of living. Too many of them have been applied in destructive utilization; too few of them in prudent maintenance and improvement of social assets. For this among other reasons a large number of our people are today without means of livelihood. This unfortunate circumstance, however, does make available a very considerable body of labor for urgent conservation work.

If we can keep in mind that a society is in business for its health, and only for its health, and can have no other business than welfare, then this matter of social as distinguished from individual accounting becomes clarified. Every business man, every citizen, has a vital stake in his society. Whatever the accounting he employs in private business, he should insist that social accounting be employed in collective affairs.

As scientists and professional specialists in works involving physical forces, engineers have indeed a great responsibility to the Nation. To meet that responsibility adequately they must somehow rise above certain limitations of the present scientific and professional point of view. They must develop the broad, the integrated view. They must develop to the highest degree the spirit of social service. In the light of this need the college which does not base its engineering courses on social understanding is at best a vocational guidance institution. But the engineers cannot alone carry the responsibility. Other sciences and professions must assume their share. The government must assume its share. The body of citizens must asume its share. Each of us must have vision, the spirit of service, and I realize, the spirit of sacrifice.

The accelerated tempo at which we are adding to scientific knowledge is rapidly narrowing the field over which one person can claim expertness. More and more, the distinctions and the other emoluments for which any one of us struggles—usually expressed in our American parlance as "the meal ticket" — result from the judgments of other specialists, frequently specialists in other fields than that in which the reward is given. Hence, as our scientific and engineering and social affairs are now conducted, the microscopic approach is everywhere apparent. We see the trees but not the forest.

There is at this time really no market for the broad point of view. The market goes to those who can scheme out savings relatively incremental as to size and immediate as to time. In engineering the urge has been for incremental savings in the cost of power. In steam the studies have led to an incredible array of thermodynamic minutiae. In water power the search has been for pools with the largest acre-feet content and the highest head, and then to make these waters as they fall yield the largest possible quota of energy. Witness 94 per cent efficiencies! But back of these developments, remarkable in themselves, the necessary long-range social objective has been missing. Seemingly, the system through which science and engineering are nurtured almost inhibits the broad approach.

Even a casual study of the natural resource situation shows that the need of society, as contrasted with the immediate welfare of the individual technician, is for syntheses and generalizations. Without any thought of disparaging research one can well ask: What will research profit us as a people if the soil, the basis of our civilization is being washed out from under our feet. The answer seems to be that in both public and private service a constantly increasing percentage of total appropriation must go for widespread and fundamental re-evaluation in the light of a synthesis of specialized knowledge. Only so can the benefits of research be realized and the work of our rapidly growing army of specialists be justified. Only so can the spending of half a billion dollars in a single year under soil conservation legislation be effective and constructive. The Government will have to step into the situation as it never has before. It should offer adequate inducements to attract to its service exceptional ability which can be educated and trained for those vital services all but ignored under our present set-up. Only so will multiple and vital social purposes be executed.

To meet the situation created by wanton waste of our natural resources will require the complete dedication of our people to a cause affecting future generations even more than our own; a cause involving expenditures greater than those of war. Further, through education and the impact of local public opinion the attitude toward land tenure must change long before any such new point of view can obtain validation in the basic law. If the Nation is to be saved, it must be established that individual possession of land does not carry with it the right to ruin.

It would be treason to present this situation as other than grave, or to suggest that victory over these insidious enemies can be won without great sacrifice. The handful of men who under Garibaldi brought freedom and nationality to Italy, asking as to what they faced, were told "Hunger and thirst, forward marches, battles and death." Quoting Alexis Carrol—"Men grow when inspired by a high purpose, when contemplating vast horizons. The sacrifice of oneself is not very difficult for one burning with the passion for a great adventure." And paraphrasing him a bit there can be no more captivating and dangerous adventure for Americans, including engineers and scientists, than the renovation of our land and water practices.

The present Administration in the creation of the Soil Conservation Service, the Civilian Conservation Corps, and the National Resources Committee, and in appropriations made for the support of the work of these and similar agencies, has made a start. But the real army has yet to be organized, the general staff set up, and professional agencies called to the colors.

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THE NATIONAL SOCIETY OF PROFESSIONAL ENGINEERS

(*Continued from page 7*)

employees designated as "engineers" to be Registered Professional Engineers.

2. In 1935 and 1936, the New York State Society successfully opposed and stopped legislation for the licensing of "stationary engineers" and "steam engineers," on the ground that it would establish a misapplication of the designation "engineer."

3. In 1936, the New York State Society secured the cooperation of the Works Progress Administration in the reclassification and re-rating of engineering positions, toward the objective of restricting engineering positions and engineering titles to Registered Professional Engineers, with more adequate compensation.

4. In 1936, the New York State Society enlisted the interest and cooperation of the State Civil Service Commission and local department officials to eliminate the misapplication of the title "Engineer" to non-professional positions.

PENNSYLVANIA

1. In 1935, the Pennsylvania Society of Professional Engineers successfully opposed and stopped proposed amendments (H.R. 1750) to the Architects' Practice Act which would have deprived Engineers of the right to file plans and applications for building permits, to obtain building permits, to design buildings and to supervise their construction.

2. In 1935, the Pennsylvania Society vigorously protested and successfully stopped an attempted political interference with the honest functioning of the State Registration Board of Professional Engineers, and secured the reappointment of Board members who were to be dropped and replaced by others while a case of revocation of license was pending.

3. In 1936, the Pennsylvania Society, in cooperation with the Architects, drafted a bill for submission to the next Legislature, to prevent any but registered Engineers or Architects from submitting construction plans to any political subdivision of the State.

4. In 1936, the Pennsylvania Society successfully assisted the Engineers of Delaware in securing the building code ruling that Professional Engineers as well as Registered Architects may prepare and file building plans.

5. In the first two years of its organization, the Pennsylvania Society established successful local Chapters at Pittsburgh, Harrisburg, Reading, Wilkesbarre, Allentown, and Philadelphia.

6. In 1935 and 1936, the Pennsylvania Society handled and submitted to the State Board for Registration of Professional Engineers many complaints to stop the practice of Engineering or the use of the designation "Engineer" or "Engineering" by those not licensed.

7. In 1936, the Pennsylvania Society waged a vigorous campaign to educate the public as to the proper use of the word "Engineer." All of the newspapers and legal periodicals and all of the judges in the State were circularized, and the political subdivisions of the State were addressed, explaining and requesting the proper use of the term.

CONNECTICUT

1. In 1935, the newly chartered Connecticut Society of Professional Engineers (following a three years' campaign which it had been conducting as the Connecticut Conference of Professional Engineers), with the effective cooperation of the other engineering organizations in the State, succeeded in securing the enactment of an Engineers' Registration Law for the State of Connecticut.

2. In 1936, the Connecticut Society conducted a splendidly effective publicity campaign on the basis of resolutions urging a Flood Prevention Program to be planned and directed by Engineers, and successfully enlisted the interest and endorsement of many leading National and local legislators and public officials.

3. In 1936, the Connecticut Society successfully enlisted the cooperation of local newspapers in giving editorial and publicity support to the objectives of the engineering profession, including promotion of professional recognition and the distinctive use of the professional designation.

4. In 1936, the Connecticut Society initiated and planned a Connecticut Engineering Congress and arranged for the participation of prominent Government officials and of other representative professional and civic organizations.

NEW JERSEY

1. In 1935, the New Jersey Association of Professional Engineers secured the appointment of its nominees to fill the vacant positions on the State Licensing Board for Professional Engineers.

2. In 1935, the New Jersey Association secured the cooperation of the Governor of the State in appointing none but Registered Professional Engineers to his technical advisory staff.

3. In 1935, the New Jersey Association succeeded in getting an active organization known as the "Electrical Maintenance Engineers' Association" to drop the word "Engineers" from its official title.

4. In 1935, the New Jersey Association adopted a uniform schedule of salaries for engineering positions and a code of fees for engineering services.

5. In 1935, the New Jersey Association secured the cooperative recognition of the Public Works Administration of the State, including recognition of the advisability of appointing Registered Engineers to positions of responsibility and the designation of local chapter representatives to serve as personnel advisors in the selection of Engineers.

6. In 1935, the New Jersey Association adopted a Code of Ethics for engineering practice and organized committees for investigating and prosecuting violations of its provisions.

7. In 1935, the New Jersey Association joined with the Institute of Architects to organize the "Architects and Engineers Advisory Council of the State of New Jersey," composed of three representatives of each organization, for cooperation in problems and objectives of mutual interest to both professions.

WEST VIRGINIA

1. The West Virginia Society of Professional Engineers was organized in July, 1934, for the express purpose of bringing the Professional Engineers in West Virginia into one group for solidarity and to join with other State groups to form a National Society.

2. In January, 1935, the West Virginia Society of Professional Engineers became affiliated with the National Society of Professional Engineers.

3. In 1935, the State Society successfully sponsored amendments to the Registration Law, which gave a broader definition of scope to Professional Engineers and eliminated all exemptions from registration except employees of the United States Government.

4. In 1935, the State Society had established seven active Chapters and a Chapter at Large in the State, with an active membership of more than half the Registered Engineers in West Virginia.

Kindly note change of business address of the American Engineer

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... Civil Engineer ...

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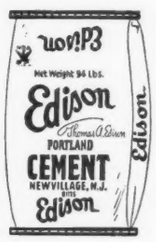

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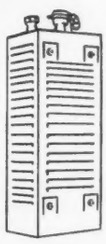

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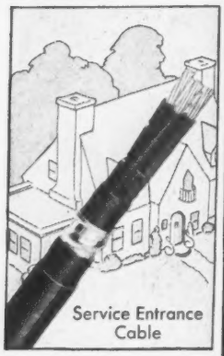
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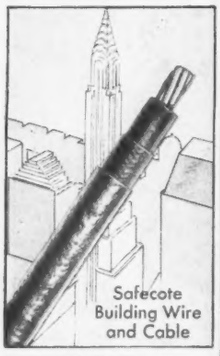
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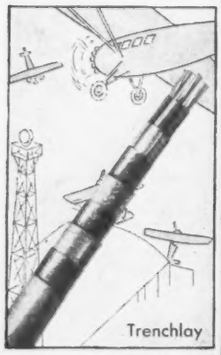
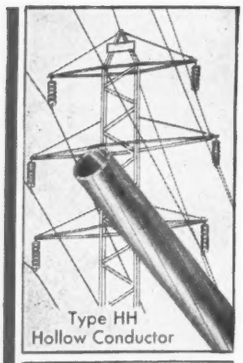
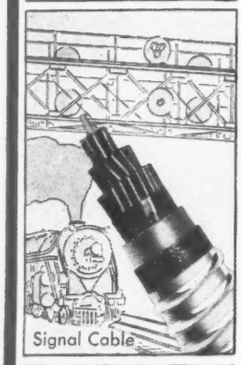
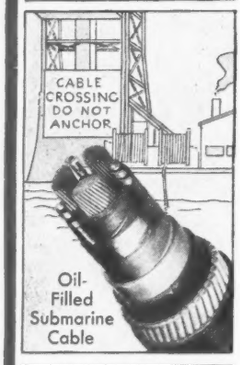

Trenchlay

Varnished Cambric Cable

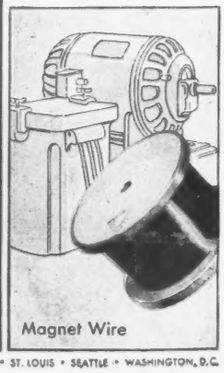

Type HH Hollow Conductor


Signal Cable



Oil-Filled Submarine Cable

Super Service Cord


Magnet Wire

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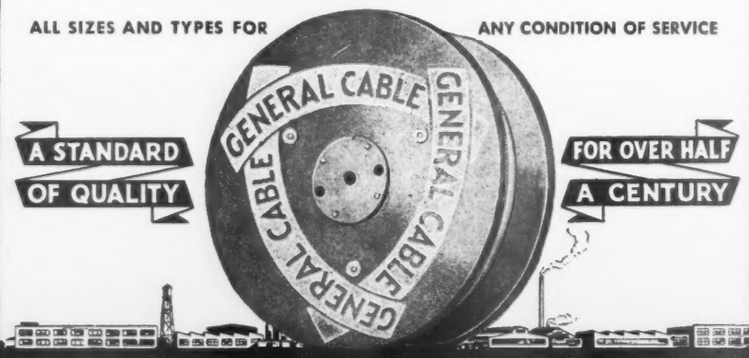

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